DALMAGAZINE

INSIDE: STELLAR FUTURES **HOPE FOR DEMOCRACY** PREPPED FOR SUCCESS

SPRING/SUMMER2023

TURNING THE TIDE ON CLIMATE CHANGE

Dal's biggest research project to date takes on humanity's biggest challenge—and it all starts in the ocean (p. 26)

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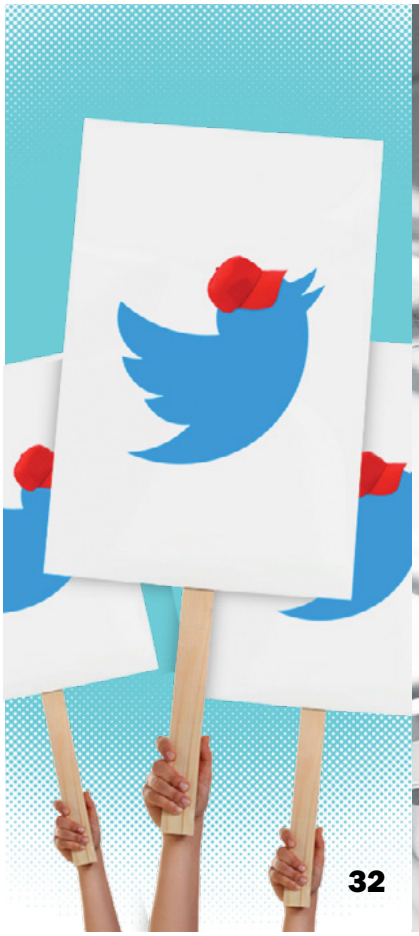

FEATURES

Dalhousie University DAL MAGAZINE **Spring/Summer 2023**

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Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

We recognize that African Nova Scotians are a distinct people whose histories, legacies and contributions have enriched that part of Mi'kma'ki known as Nova Scotia for over 400 years.

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EDITOR'S LETTER

By AnnMarie MacKinnon

Taken as a whole, the challenges we face globally today can sometimes feel insurmountable. Just the thought of how to tackle issues like increasing wealth disparity, climate change, and distrust of government and media, to name but a few, can make it all too easy to slip into a sense of overwhelm. But to effect real change, we'd be well served to take the wise advice of Albert Einstein: "Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning."

This issue of *DAL Magazine* is full of changemakers who are doing just that—taking on the challenges we face as a species with curiosity, commitment to collaboration, and an eye to a bright future. Mark Campbell explores how a newly funded Dal-led research program will help us find new ways to stave off climate change in "Turning the Tide," (p. 26); Chris Benjamin speaks with Dal experts about how we can keep our political conversations productive in "We Need to Talk about Democracy," (p. 32); and in "Seeing the Light," we learn about some of the remarkable advances researchers are making in clean tech (p. 44).

As always, we encourage you to stay in touch. Submit a Class Note (email classnotes@dal.ca), share your thoughts on what you read in this issue (email editor@dal.ca), and check out our online edition where you'll find lengthier interviews, more images, and supplemental content (dal.ca/dal-magazine). ■

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MESSAGE FROM THE PRESIDENT FRANK HARVEY

JUNE 2023

I'm pleased to provide a message for this edition of *DAL Magazine*—my first as acting president and vice-chancellor.

This is the latest in a series of roles—professor, chair, dean, provost—that I have held over more than 30 years at Dalhousie. During that time, this institution has achieved impressive growth, further cementing its place among the best universities in Canada. The considerable energy, enthusiasm, and commitment to innovation that's invested in every undertaking is a constant source of pride for me. This was particularly true throughout the pandemic. We have emerged from that experience stronger, demonstrating a renewed sense of dedication, purpose, and community spirit. Seeing all that we have achieved together, I feel honoured to be in my current role at such an exciting time in our history.

I am even more excited to share with you how Dal continues to make history. As you will discover in this edition of *DAL Magazine*, we received a $154 million investment from the Canada First Research Excellence Fund to launch the Dalhousie-led Transforming Climate Action plan. Through this project, we will bring together experts from across Dalhousie and from partner institutions across Canada to better understand and strengthen the ocean's vital role in slowing climate change.

This significant undertaking is one of many major Dalhousie-wide initiatives that are helping to address key societal challenges and fuel growth in local, regional, and global communities. I hope that, as you read about them, you feel optimistic that positive, lasting change is possible, and that you, too, take pride in seeing that it starts right here at Dalhousie. ■

NEWS

Building a better battery

It happens far too often: you plug your laptop in and walk away only to return hours or days later to find it has lost some of its charge despite sitting idle and unused. The phenomenon—called self-discharge—has frustrated users and industry alike, and puzzled manufacturers trying to determine why lithium-ion battery cells tend to lose some of their charge over time. A researcher at Dalhousie has identified a surprisingly common culprit that, if replaced, could address an enduring problem for the industry.

Commercial battery cells contain tape that holds electrodes together and its chemical decomposition leads to battery self-discharge.

"In commercial battery cells there is tape—like Scotch tape—that holds the electrodes together and there is a chemical decomposition of this tape, which creates a molecule that leads to the self-discharge," says Michael Metzger, an assistant professor and the Herzberg-Dahn chair in the Department of Physics and Atmospheric Science.

"In our laboratory we do many highly complex experiments to improve batteries, but this time we discovered a very simple thing. It's a very simple thing—it is in every plastic bottle and no one would have thought that this has such a huge impact on how the lithium-ion cells degrade."

Dr. Metzger and his colleagues found that the polyethylene terephthalate, or PET, in the tape decomposes and creates the molecule that leads to the self-discharge. The molecule is called a redox shuttle because it can travel to the positive side of the electrode, then to the negative side and then back to the positive side. So, it shuttles between the electrodes and that creates the self-discharge, just like lithium is supposed to do. The problem is that the shuttle molecule is doing it all the time in the background, even when no lithium is supposed to move when the battery just sitting there.

"It's something we never expected because no one looks at these inactive components, these tapes and plastic foils in the battery cell but it really needs to be considered if you want to limit side reactions in the battery cell," he says of the tape made from PET, a strong, lightweight plastic used widely in packaging and pop bottles. The researchers outlined their findings in two new papers and are catching the attention of industrial heavyweights seeking ways to improve their batteries' performance.

The information could lead to a fix that might involve replacing the PET tape with a more stable material that won't degrade.

"It's a commercially relevant discovery. It's a small thing but it can definitely help improve battery cells." he says.

—Alison Auld

Dal Order of Canada appointments

Brian G. MacKay-Lyons (BSc'73, BEDS'77, BArch'78), an award-winning architect with a global clientele who taught for years in Dal's School of Architecture, and Dr. John Bragg (LLD'08), a philanthropist and renowned Canadian business leader, were two of seven individuals with ties to Dalhousie to receive one of Canada's highest honours in the Governor General's announcement.

Also included in the Right Honourable Mary Simon's announcement were Timothy Caulfield (LLM'93); Dr. Feridun Hamdullahpur (PhD EN'85); Dr. Andreas Laupacis (PMG'79); Colleen Jones; and Dr. Allen Eaves (MSc'67, MD'69).

Her Excellency described this year's recipients as "celebrated trailblazers in their respective fields, [who are] inspiring, educating and mentoring future generations, creating a foundation of excellence in our country that is respected throughout the world."

The Order of Canada celebrates citizens who have made exemplary and longstanding contributions to this country. From volunteers to scientists, businesspeople to artists, since 1967, this award has recognized people whose life and work has made this nation a better place. The Order is considered one of Canada's highest honours.

—Christena Copeland

UNSPLASH. SUPPLIED

2023 Order of Canada winners

First academic director for Black health

When Dr. Leah Jones was completing her medical degree and residency training, she recalls she was often one of the only Black people in the room.

The recently appointed academic director, Black health, and family physician is hoping to change that for future students by creating a supportive, welcoming environment to work and learn.

"I want to make sure that, as we recruit and support Black learners into medical school, they continue to feel that support during their training and want to stay in the Maritimes to practice."

Dr. Jones, who began her position on September 1, will lead in co-developing and overseeing the direction for the Faculty of Medicine to engage African Nova Scotian and Black populations in the Maritimes.

A 2018 graduate of Dalhousie Medical School, Dr. Jones hopes she will be able to connect with students and understand what they are experiencing.

"Very recently I was in their shoes, so I know how challenging it can be," she says. "So, if there's anything that I can do to help, even one person, it will be worth it."

Dr. Jones is advising on undergraduate curriculum related to African Nova Scotian and Black health and will co-lead both the Sofia B. Jones Mentorship Program for Black medical students, and PLANS. She also provides advice to Dr. David Anderson, the dean of Dalhousie Medical School, and the associate dean of Serving and Engaging Society, Dr. Gaynor Watson-Creed, on matters related to the health and well-being of African Nova Scotian and Black communities.

Clinically, Dr. Jones will continue her work in addictions and harm reduction, and working with the Nova Scotia Sisterhood, she will provide primary care specifically for Black women and gender diverse individuals in Nova Scotia.—*Kate Rogers*

Dr. Leah Jones, academic director, Black health

SUPPLIED, NICK PEARCE

NEWS

Dr. Eva Mroczek, the Simon and Riva Spatz Chair in Jewish Studies

Dalhousie rises in latest Top 50

A new spotlight in this year's Research Infosource list of Canada's Top 50 Research Universities has placed Dalhousie at the top of the list for its success with securing national funding grants from the Government of Canada.

The 2022 list also included a step up to 16th place overall thanks to Dalhousie's growth in research income (FY2020-FY2021).

Dalhousie placed first among medical tier universities for Social Sciences and Humanities Research Council of Canada (SSHRC) research income as a percentage of total research income with 5.6 per cent.

The university also took the top spot for Natural Sciences and Engineering Research Council of Canada (NSERC) research income as a percentage of total research income with 19.1 per cent.

Dalhousie's Canadian Institutes of Health Research (CIHR) research income as a percentage of total research income resulted in sixth place with 14.2 per cent.

In addition to Dalhousie's Tri-Agency funding successes, the university's Canada Foundation for Innovation (CFI) research income, which helps to fund the infrastructure needs of researchers, was 5.2 per cent of total research income, earning fifth place.

Dalhousie's SSHRC, NSERC, and CFI funding results earned Dalhousie a place in the Winners' Circle table.

Canada's Top 50 Research Universities ranks full-service universities based on their total sponsored research income and takes into account total sponsored research income, research intensity per faculty, research intensity per graduate student, total number of publications, publication intensity, and publication impact.

Research Infosource is a leading Canadian research, consulting, and publishing firm, and a leading source of ranking information on research universities, corporations, hospitals, and colleges.

—Stefanie Wilson

Dalhousie has moved up the 2022 Research Infosource list to 16th place overall.

Inaugural Spatz Chair appointed

Dream jobs can be tough to come by, but Dr. Eva Mroczek feels like she's finally found hers.

Dr. Mroczek has been named Dalhousie's inaugural Simon and Riva Spatz Chair in Jewish Studies, an appointment that'll see the seasoned Jewish Studies scholar trade the Californian coast for Nova Scotia.

"I've wanted to live in Halifax since I was a teenager, and I've hoped to return to Canada at some point in my life to help

NICK PEARCE, SUPPLIED, UNSPLASH

build Jewish Studies here," says Ontario-born Dr. Mroczek, who'll formally take up the post at Dal in July 2024. "It really is my dream job, and I can't wait to see what we build together."

The new position replaces a previous visiting chair program with a longer-term tenured appointment that Dr. Mroczek will take up in the Department of Classics and its Religious Studies program.

Dr. Mroczek is currently the director of the Jewish Studies program at the University of California, Davis. Her studies centred on ancient religions, Jewish Studies, and Book History with a focus on the Dead Sea Scrolls and ancient Jewish writings, and she is excited to be taking on the challenge of the position in Canada.

"What I've found most fulfilling in my academic career so far is connecting with people, students, scholars, and the broader community, around how exciting and wide-ranging Jewish Studies can be," she says. "It is an honor to bring that vision to Dalhousie."

—Genevieve MacIntyre and Matt Reeder

LORIS launched from ISS

Over the December break when many Dal students were decompressing from the end-of-term crunch, a hardy group from the Faculty of Engineering were on high alert as they awaited the much-anticipated launch of a mini satellite they'd built into orbit around Earth.

LORIS, a shoebox-sized nanosatellite designed and built by students in the Dalhousie Space Systems Lab over the past

The LORIS CubeSat floats above Earth in this image taken from the International Space Station

NASA

quoted.

Dal experts in the news.

NEWS IN FRANCE *Colossal Biosciences wants to resuscitate the dodo, after the mammoth and the Tasmanian wolf*

"Preventing species from becoming extinct should be our priority. And in most cases it's much cheaper."

—**Dr. Boris Worm**
Department of Biology

CTV NEWS *Why one of Canada's most popular national parks is clamping down on tourism traffic*

"We have a car problem, not a people problem, in our parks."

—**Clara-Jane Blye**
School of Health and Human Performance

DAILY OIL BULLETIN *Hydrogen ahead: Nova Scotia presents opportunities in the clean energy future*

"This is not pie-in-the-sky technology. It's proven. The technology is there."

—**Dr. Grant Wach**
Department of Earth and Environmental Sciences

OTTAWA SUN *Public health should remain a priority after the pandemic, panelists say*

"When public health loses its footing it is very difficult to bring it back online."

—**Dr. Gaynor Watson-Creed**
Faculty of Medicine

NEWS

several years, was finally released December 29, 2022 by NASA after its ascent to the International Space Station late last fall.

The student team, led by Engineering Masters student Arad Gharagozli (DEngR'17, BEng'20), created the satellite as part of Canada's CubeSat program. A CubeSat is a miniature satellite that can be used for various purposes, including taking imagery, conducting experiments, and supporting educational projects.

LORIS is the first CubeSat from Atlantic Canada to be sent into orbit. It is one of more than a dozen such rigs being launched as part of the Canada Space Agency-funded program.

Now that it's in orbit, LORIS—which stands for low-orbit reconnaissance imagery satellite — will aim to provide a window for researchers into how certain technologies function while in space. It will also collect aerial images of Earth and Halifax.

Researchers aboard the ISS have beamed back some images of LORIS floating above Earth.

Bon voyage, LORIS!

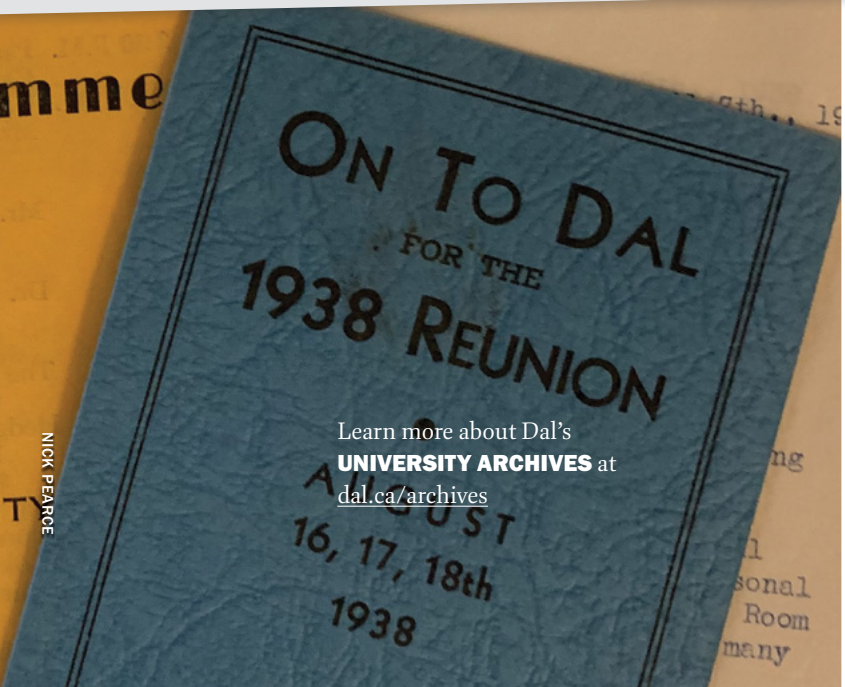
—Matt Reeder ■

Arad Gharagozli (MASc'22), lead on the LORIS project.

Get the latest **DAL NEWS** at dal.ca/news

NICK PEARCE

Miscellany from past Alumni Association events



NICK PEARCE

found.

Archiving Dal's history.

Back to Old Dalhousie as in days of old—
Back to Alma Mater and the Black and Gold—
The memories of our college growing brighter
year by year—
Here's to old Dalhousie ever to her children dear. (ca. 1921)

As part of Dalhousie's 1924 reunion weekend, the Alumnae Association staged a pageant featuring co-eds' fashion across the decades, beginning with 1881, when women students were first admitted at Dal. (We can assume that the young ladies holding the 1934 placards were forward thinkers.)

The official reunion program also listed a harbour excursion, athletics, band concert, hodge-podge supper and campfire in Sherriff Hall Grove, an alumni procession from the site of the former college at Halifax's Grand Parade up to Studley Campus, and a closing ball in the new campus gymnasium. The associated dance card suggests that efforts were made to satisfy both the most venerable alumni (Class of 1869!) and the newly capped graduates, and included waltzes, one- and two-steps, a racy foxtrot and a "Paul Jones" easy mixer.

The Alumni Association, founded in 1871 to promote Dalhousie's best interests and to "foster an affection for one another and for our Alma Mater," held annual meetings, usually followed by the ubiquitous "smoker"—a fuggy evening of songs, speeches, and cigarettes—and sometimes more formally with a dinner at which local alum hosted the graduating class. While individual classes might organize their own annual reunion dinners, collective gatherings were less frequent.

A 1903 "Alumni at Home" was reported to be Halifax's event of the year, with more than 800 attendees dancing in the law library and tucking into a midnight supper. In 1911, some 200 former students convened to kick off the association's first major fundraising initiative—the Dalhousie Forward Movement—which helped pay for the new Studley campus. The 1919 reunion celebrated the centenary of Dalhousie's founding with a parade from Barrington Street up to the newly built Sherriff Hall, complete with a float bearing a model of the original Dalhousie College building. And in 1938 the association held a "monster reunion" to celebrate another centennial—100 years of continuous teaching.

—Jennifer Lambert ■

Learn more about Dal's **UNIVERSITY ARCHIVES** at dal.ca/archives

RESEARCH ROUNDUP

By Alison Auld, Matt Reeder and Andrew Riley

Approved drug offers promise of potential antiviral

The spread of SARS-CoV-2 set off a daunting quest to both develop vaccines and look for ways to treat a novel coronavirus that appeared to be highly transmissible and deadly.

Those efforts included an examination of existing drugs that could be repurposed to safely and effectively treat people infected with the virus that causes COVID-19.

Virologists at Dalhousie University took on that challenge, using their work researching antivirals for influenza viruses to explore drugs that could be used to treat SARS-CoV-2. They discovered that an FDA-approved drug known as 6-thioguanine, or 6-TG, can inhibit the replication of human coronaviruses, including SARS-CoV-2. The finding could eventually help in the development of effective, safe treatments for future coronavirus outbreaks.

RESEARCHERS: *Brett Duguay, Eric Pringle, Craig McCormick; University of Saskatchewan; University of Calgary*

Dr. Eric Pringle, left, and Dr. Brett Duguay

ALISON AULD

Seafood beats beef in nutrition, environmental battle

When it comes to the battle over nutrition and the environment, salmon, herring, mackerel, and wee anchovies may have beef beat.

Researchers from Dalhousie and Sweden have found that seafood can provide greater nutrition to people with a lower rate of greenhouse gas emissions than beef, pork, and chicken. They found that wild-caught salmon, herring, mackerel, and anchovies, as well as farmed mussels and oysters, had the lowest climate impacts relative to their nutritional value. Half of the seafood species had a higher nutrient density and emitted fewer greenhouse gases than beef, pork, and chicken.

The findings suggest that policies to promote seafood in diets as a substitute for other animal protein could improve future food security and help address climate change.

RESEARCHERS: *Robert W. R. Parker, Kathleen Mifflin, Peter Tyedmers; RISE Research Institutes of Sweden; Aquaculture Stewardship Council (The Netherlands)*

Social work scholar ranks top in the world

Dr. Michael Ungar has transformed the way we think about resilience. Challenging assumed wisdom that people independently summon the strength needed to thrive, his work shows that societies also play an important role.

The lens provided by Dr. Ungar's research has come into focus for scholars around the globe, a fact reflected in his recently publicized status as the world's leading social work researcher based on the impact of his scholarly writing and citations. The ranking was published by the journal *Research of Social Work Practice*, which drew on a database of more than eight million scientists globally from every discipline and filtered out the top 100 researchers in the field of social work.

His ideas have gained wide recognition across mental health disciplines, including publication in *Lancet Psychiatry*, and his Resilience Research Centre collaborates with local, national, and international institutions to explore pathways to resilience across cultures.

Dr. Afua Cooper, winner of the Royal Society of Canada's J. B. Tyrrell Historical Medal

Weaving Black history into the Canadian narrative

Dr. Afua Cooper is a walker. She says it's when she does her best thinking. But when she weaves her way through the streets and pathways of Halifax, the past is always with her. It's a history that she wants to make evident to her students and the world beyond the classroom.

The facts, she says, provide the foundation to build a common understanding, a starting place for a more productive dialogue and empathy. And, according to the Royal Society of Canada, no one has done more to build the facts of Canadian Black history than Dr. Cooper, who they named the winner of the J. B. Tyrrell Historical Medal in September 2022, an award granted every two years.

"For them to recognize the work that I'm doing, which focuses predominantly on Black history, it signals that they recognize the importance of this other history that has been at the margins for so long—recognizing it as an integral thread of Canadian history."

Recruitment of new Black scholars to boost key academic priorities at Dal

Dalhousie will hire five Black scholars as part of an ambitious recruitment initiative that promises to strengthen key research and teaching priorities at the university. Recruitment for individual positions in the Faculties of Arts and Social Sciences, Management, Science, Health, as well as the Schulich School of Law took place over the winter term.

Dalhousie's location in a province with more than 50 African Nova Scotian communities offers a rich cultural backdrop for the new scholars and could provide unique opportunities for academic projects as well as for connecting campus with community.

Chemist wins award for science that begins with structural beauty

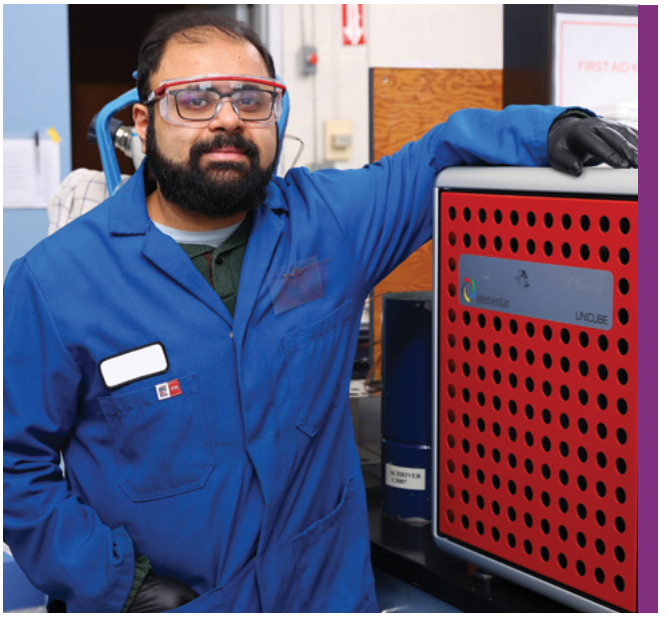
Dr Saurabh Chitnis has a novel approach for selecting the molecules he creates. He starts with beauty.

"Students in my lab and I are really drawn to molecules that exhibit structural attractiveness," says Dr. Chitnis. "It really starts from this point of beauty and then we tease out the chemical consequences of that structure. When we do this, we make fascinating discoveries."

This novel approach attracted the recognition of the Alfred P. Sloan Foundation, which awarded Dr. Chitnis a 2023 Sloan Research Fellowship in February 2023. While his chemical journeys begin in an unexpected place, they can lead to impactful desitinations.

He is currently working with Dalhousie's Office of Commercialization and Industry Engagement to secure a patent for a molecular structure which promises to revolutionize the way materials are created. It's a discovery that may catch the eye of industrial partners keen to leverage the chemistry to build materials with desirable new properties and without the input of fossil fuels. ■

Dr. Saurabh Chitnis in the lab

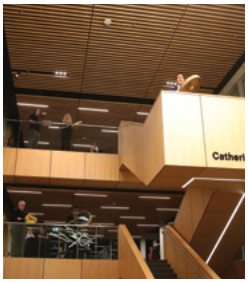


DANNY ABRIEL, NICK PEARCE

events.

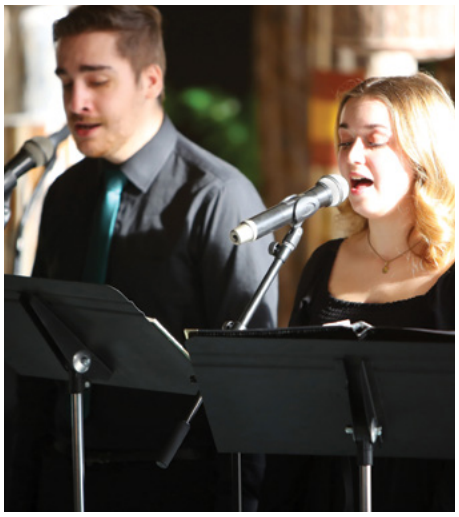
Joseph Strug Concert Hall Gala

In March, the Fountain School of Performing Arts formally opened the Joseph Strug Concert Hall with a gala concert in the expanded Dalhousie Arts Centre. Students, faculty members, and special guests, like The Thundermakers pictured below, paid tribute to the many who helped bring the new space to life—including supporters of Dalhousie's recent Performing Arts Campaign.



Open Dialogue Live

An Open Dialogue Live event in December (pictured) looked at the development of clean technology solutions. Faculty and alumni experts discussed Dal's role in transitioning from fossil fuels to a clean-tech economy powered by renewable energy. Open Dialogue Live events in the winter and spring addressed health outcomes and ocean research.



Carol Sing

Dal's annual carol sing brought community members together in December to share music and good cheer.

Shaar Shalom

This year's Shaar Shalom lecture at Dalhousie was the largest it's ever been, and featured panelists Ambassador Bob Rae and retired Gen. Roméo Dallaire speaking about human rights and global peace.

Medical Alum of the Year

The Dalhousie Medical Alumni Association's Alumni Recognition Awards event recognized six individuals for their outstanding achievements in research and clinical practice, and contributions to the medical school, students and community. Dr. Robert Liwski (BSc'94, PhD'99, MD'03), the head of Hematopathology at the QEII Health Sciences Center, was named Alum of the Year.

Climate Action

The Dalhousie Faculty of Architecture and Planning, in collaboration with the Clean Foundation and the HalifACT Team, hosted an engagement series called "Enabling Change: Designing the Path Towards Climate Action." It brought together experts, interested members of the public, and practitioners to find new ways forward.

AND MORE!

1982 Dal Tigers Volleyball Team

Late last fall, the 1982 Dal Tigers Volleyball Team was inducted into the Volleyball Nova Scotia Hall of Fame.

Oktoberfest

Alumni gathered in October to celebrate Oktoberfest, enjoying Bavarian food, drinks, music, and trivia.

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See the latest events listings: alumni.dal.ca/events

conference.

Dal and King's partner to host Universities Studying Slavery Conference

The common threads between Dalhousie University and the University of King's College are multitude. In recent years, those threads have included pointed explorations of the past: scholarly inquiries to examine historical intersections with the legacies of slavery.

The Report of the Lord Dalhousie Scholarly Panel on Slavery and Race, released in 2019, and King's and Slavery: a Scholarly Inquiry, published a year later, both represented significant milestones in the universities' journeys to understand their history and build stronger future for individuals of African descent.

As part of the work during and following their respective inquiries, both universities joined the Universities Studying Slavery (USS) organization. Based out of the University of Virginia and comprising more than 60 universities, in the United States, Canada and the United Kingdom, USS is dedicated to organizing multi-institutional collaboration on research into historical and contemporary issues dealing with race and inequality in higher education and university communities.

This fall, Dalhousie and King's, in partnership with the Black Cultural Centre for Nova Scotia, will host the 2023 USS Conference—the first USS gathering to be held outside of the United States.

The event will explore the theme, "Slavery, Reparations and Education: African Nova Scotia, Canada and Beyond." Scheduled to take place in Halifax from October 18-21, the conference will focus on the multiple ways in which anti-Black discrimination in and beyond universities is rooted in historical enslavement and the perpetuation of the racist ideologies that fueled it, while also examining the multigenerational harms and disadvantages that are its legacy. Furthermore, the conference will highlight the perseverance, contributions, and triumphs of Black people and communities, in Canada, Nova Scotia, and around the "Black Atlantic" world.


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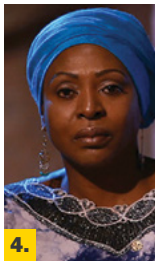
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The conference will feature seven keynote addresses by individuals with local, national, and international reach and impact. They include:

1. **Dr. John Mahama**, former president of Ghana

2. **Sir Hilary Beckles**, vice-chancellor of the University of the West Indies and Chairman of the CARICOM Reparations Commission

3. **David Comissiong**, Barbadian lawyer, former senator, and founder of the Clement Payne Movement

4. **Dr. Afua Cooper**, distinguished historian and poet, and Killam Research Chair in Black and African Diaspora Studies at Dalhousie University

5. **Dr. George Elliott Clarke**, renowned African Nova Scotian poet and E.J. Pratt Professor of Canadian Literature at the University of Toronto

6. **Dr. Sylvia D. Hamilton** renowned African Nova Scotian filmmaker, writer, journalist, and artist, and University of King's College Inglis Professor

7. **Dr. Harvey Amani Whitfield**, leading historian of Black history and slavery in Colonial Canada and a professor in Black North American History at the University of Calgary.

As the first USS Conference to be held in Nova Scotia—home of African Nova Scotian communities with 400 years of history—community connections will be a pivotal part of the event, including activities hosted at the Black Cultural Centre for Nova Scotia in Cherry Brook.—*Ryan McNutt*

More information on the **USS CONFERENCE** can be found at ussconference.ca

SUPPLIED

read.watch.listen.

Dal alumni and faculty share their books, television shows, films, webinars, and podcasts.

1. BOOK

Frequently Asked White Questions

By **Dr. Ajay Parasram and Dr. Alex Khasnabish**

This basic guide for people learning about racial privilege is based on Dr. Parasram and Dr. Khasnabish's lived experiences and their YouTube series "Safe Space for White Questions," and features answers to questions like "How can we build the world we deserve?"

2. RADIO

How Halifax technology could help in the fight against climate change

By **Dr. Boris Worm and Dr. Will Burt (PhD'16)**

In a February 6, 2023, segment of CBC NS's program, *Mainstreet*, Dr. Worm discusses ocean acidification and how technology being developed and tested in Halifax could help prevent global temperatures from rising with guest Dal alum, Dr. Burt.

3. BOOK

Biographical Dictionary of Enslaved Black People in the Maritimes

By **Harvey Amani Whitfield (MA'99 and PhD'03)**

Dr. Whitfield tells the life stories of 1,400 (mostly enslaved) Black men, women, and children—people whose stories might otherwise have been omitted from written history. In so doing, he shows the range of experiences Black people have had in the Atlantic region.

4. BOOK

Symptoms of the Self

By **Dr. Roberta Barker**

In the 19th and 20th centuries, tuberculosis was a common killer and its representation on stage, often with its telltale cough and bloodied handkerchief, became a means to impose standards of health and beauty, debate class, sexuality, and gender, and transgress boundaries. Dr. Barker discusses the past story of the disease and how its portrayal on stage still affects how we live and die today.

5. BOOK

This Is Your Captain Speaking

By **Doug Morris (BSc'82)**

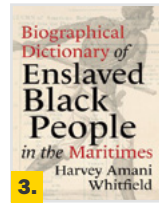
Everything you ever wanted to know about air travel—from how to become a pilot to what flight crew does during their downtime—and more! Morris provides funny and fascinating anecdotes from the hidden side of the world of aviation.

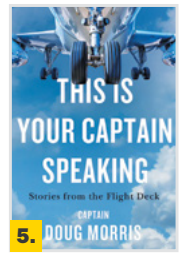
6. BOOK

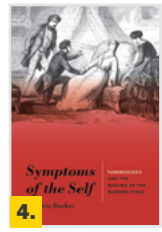
Boys Who Do the Bop

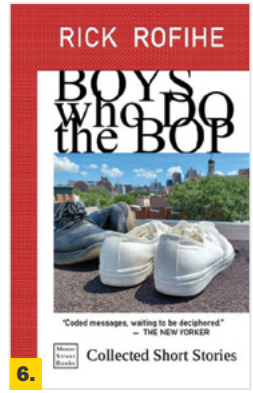
By **Rick Rofihe (BA'71)**

This collection of short stories by Bridgewater, N.S., writer Rick Rofihe tells of people living quietly extraordinary lives. Described by a reviewer for the *New Yorker* as "Coded messages... waiting to be deciphered."









Did you know you can **ORDER BOOKS AND MORE ONLINE** from the Dalhousie Bookstore?
Go to dal.ca/bookstore

As founder and CEO of Inpower One, a China-based management consulting firm with global scope, Dal alum **CINDY JENSEN** (BComm'84) embraces her fast-paced life in Beijing.

24 HOURS

6 A.M. I use this time to exercise my mind and body before my day starts. Today, I choose Pilates.

7 A.M. My mornings always include coffee with my husband, Scott. It keeps me grounded. There's a creative component to the work I do, so it's great to bounce ideas off him and to get a new perspective.

8 A.M. I'm working toward a master's in applied neuroscience, so I dedicate time to that each morning. It's demanding and intensive, but exciting. It helps set me up for my workday.

10 A.M. I'm at the office and check in with some clients over WeChat. They're keen to get together today to discuss new ideas I have. It's that spontaneity that excites me. Clients here are incredibly responsive and accessible. There's a real agility in the work done in Beijing.

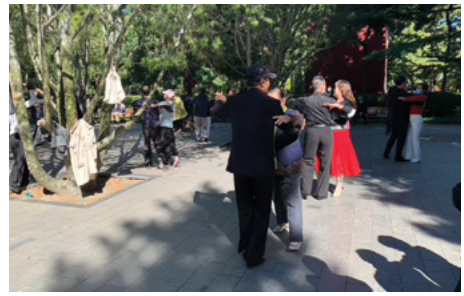
12 P.M. I stop at a restaurant near my office for some dumplings, a favourite of mine. I enjoy chatting with the restaurant staff, which allows me to speak Chinese. We moved here over 20 years ago for Scott's work, which was only supposed to be a three-year plan, but we loved it and decided to stay.

2 P.M. I'm leading virtual meetings at the office. We work with clients all over the world, so time zones are a factor. This afternoon we'll be chatting with clients in Germany and later in the evening, with clients in Brazil, each about how we can support them in change management projects and a global IT rollout. I love the idea of co-design, of combining forces to come up with solutions.

6 P.M. I'm heading home and look forward to reconnecting with Scott and having our daily call with our daughter, who is working in Amsterdam. Scott is the cook in our family, it's a real passion of his. Tonight, he's making garlic prawns, salmon fish cakes, and steamed clams, alongside fresh vegetables, toasted French bread, and red lentil soup.

7:30 P.M. After dinner, we walk round our village. We live in Beijing's business district of Chaoyang. There are always people outside cooking, walking, talking and sometimes even dancing. It's stimulating. The community always feels so alive.

—Allison Barss ■



TOP: A homecooked evening feast
RIGHT BOTTOM: Dancers in Chaoyang
LEFT: Cindy Jensen spends time with solid neighbours

SUPPLIED

SPOTLIGHT

Dr. Darren Burke makes alternative proteins to feed the future

SUPPLIED

DR. DARREN BURKE (BPE'91, MSc'95) describes himself in one word as "curious."

It's been this inquisitiveness, driven by a work ethic he developed as a scrappy youngster, that is propelling him through a career as a supplement development scientist, university professor and food entrepreneur.

Dr. Burke used to be a leader in food upcycling, turning foods that would have been discarded into other foods fit for human consumption. But his most recent venture involves something nuttier. As founder and CEO of a stealth-mode company, he's developing a revolutionary alternative protein—an "almond" created from fermented mycelium, the root-like structure of a fungus (mushroom).

It's "an incredibly lofty goal," says Dr. Burke. "But hey, shoot for the stars and settle for the moon; isn't that the saying?"

Dr. Burke became interested in creating an alternative protein from mycelium some years ago. The process was being used to make chicken, ground beef, and salmon fillets in labs, but not to create foods more palatable for vegans like Dr. Burke and his family.

"I think it's the future of how we feed our population," he says. The end goal is to come up with something that looks and snaps like an almond, but initially will be a powder that can become almond flour, almond butter, or another meat analogue.

Dr. Burke is also committed to using processes that are less destructive to our planet. Almonds require copious amounts of water to grow. Those currently eaten across North America are farmed in drought-plagued California, then transported by land vehicles across the continent. Dr. Burke says his product will match or exceed the nutritional benefits of traditional almonds while being made with 90 per cent less water.

He's never shied away from a challenge. While doing his undergrad at Dal in physical education (he's always been passionate about diet and exercise), he took supplemental science courses out of interest. He met kinesiology professor Dr. Larry Holt while volunteering to participate in some campus research studies. "He [Larry] changed my life," says Dr. Burke. "Here was this accomplished academic and intellectual, and he taught me to button my mouth, think, and that being aggressive is offensive."

Dr. Burke's made it his mission to act in kind. He now spends time helping others commercialize their ideas and brands. "Larry demonstrated the value of mentorship to me and I'm carrying on his legacy." Dr. Holt became Dr. Burke's master's thesis advisor and was his mentor until he died two years ago.

"The most important lesson Larry taught me was anything is possible." It's a mantra Dr. Burke repeats regularly as he's shooting for the stars.

—*Alison DeLory* ■

WHY I **GIVE**

For **ANDREW RITCEY** (BPE'76, MA'87), giving is not so much a passion as it is a calling—one he feels increasingly driven to answer.

"My partner, Virginia Veinot, and I are at a stage in our lives when we are able to give back more than ever before," says Ritcey, a recreation therapy consultant and former health services manager and recreation therapist at what is now called NS Health – Central Zone. "We feel it's important to be as generous as possible as there are community needs that can't wait."

That commitment to meeting needs was first nurtured by Ritcey's family. He recalls the example set by his grandfather, Harris Andrew Ritcey, a man of basic means who achieved success, and his mother, Margaret Townshend Sherwood Ritcey, who demonstrated exceptional kindheartedness. Their efforts to build stronger communities inspire Ritcey to make a difference and to ensure the contributions of everyday Nova Scotians like them are recognized and remembered.

Ritcey's commitment to giving led him back to Dalhousie University and the School of Health and Human Performance. He says its Recreation Therapy program provided a solid foundation for his professional career.

"This is a program that has been a leader in Canada since its inception," Ritcey says. "I want to make sure it continues to set standards in the educational development of recreation therapy professionals and educators through my gifts."

With Veinot (CPA'85, BA'87, MPA'91), Ritcey established two scholarships for doctoral or postdoctoral scholars of therapeutic recreation, one named for Ritcey's mother and one for his grandfather. Both provide $25,000 annually, enabling recipients to focus on studies, research, and mentorship. Ritcey and Veinot also created funds to support students attending the annual Nova Scotia Therapeutic Recreation Association Conference and initiatives that further the university's strategic mission, such as experiential learning and research.

"Given economic and aging patterns in North America, we are now in a crisis where a large number of recreation therapy educators are retiring and there is a shortage of PhD educators available to fill the vacancies," Ritcey says. "This, along with the recognition that recreation therapy professionals have a significant role to play in health and community care, inspired me to think about how I could assist."

Through his gifts, Ritcey is supporting academic and research excellence and enhancing recreation therapy internships in rural Nova Scotia at Dalhousie. He hopes his actions encourage other alumni to give generously, just as his family inspired him.

"There is so much to do," he says. "Let's be leaders and make this happen."—*Mark Campbell* ■

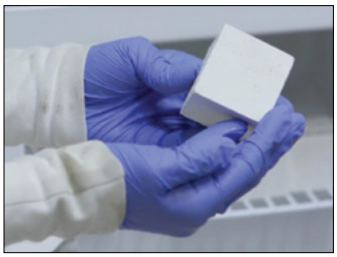
Andrew Ritcey wants to make sure Dal's School of Health and Human Performance continues to set standards in the education of recreation therapy professionals

SUPPLIED

INNOVATOR

LEAH ELLIS (BSc'11, MSc'13, PhD'18) is the co-founder and CEO of Boston-based Sublime Systems, whose decarbonized cement seeks to keep the world building sustainably.

INNOVATION: From ancient Rome to present day, cement remains an essential building material, but its manufacturing accounts for approximately eight per cent of global CO2 emissions. Cement is traditionally made by heating a mixture of limestone, clay and sand in a coal-fired kiln to over 1400°C. Sublime Systems instead uses an electrochemical process to make cement at ambient temperature from a variety of abundant calcium sources. The result is a decarbonized cement that performs like the old standby and helps the construction industry commit to being net zero by 2050.



Decarbonized cement could decrease the construction industry's carbon footprint

FOUNDATION: After earning a PhD in chemistry from Dr. Jeff Dahn's lab at Dal, Dr. Ellis co-founded Sublime Systems in 2020 as a spin-out company from her postdoctoral work at the Massachusetts Institute of Technology (MIT). In January 2023, the company announced a $40 million injection of capital that will allow Sublime to grow its team, scale production and negotiate offtake agreements from customers. Sublime currently has the capacity to produce 100 tons of its low-carbon cement annually but plans to increase production to 40,000 tons per year by 2025.

INSPIRATION: During her time at Dal, Dr. Ellis remembers Professor Mary Anne White discussing cement's outsized carbon footprint. The question of whether zero-carbon cement could become a cost-effective reality convinced her and MIT's Dr. Yet-Ming Chiang to join forces and launch Sublime. "Through our expertise as battery scientists, we were able to find a solution by replacing a traditional thermal process with an electrochemical one," says Dr. Ellis. "We approached the problem with determination and a creative mindset and were able to devise a breakthrough solution."

WHY IT MATTERS: Decarbonized cement would keep the construction industry building while nations work toward meeting their climate goals. Sublime's innovations were on display at last November's COP27 in Egypt as part of a U.S. State Department exhibit showcasing firms whose technologies seek to reduce industrial CO2 emissions. "Low-carbon cement is critical to build a decarbonized economy," says Dr. Ellis. "It's ambitious, but we need to decarbonize the cement industry by 2050. We're in a new industrial revolution where we need to redesign chemical processes in ways so that they aren't harmful to the environment." —*Kenneth Conrad* ■

SUPPLIED

WHY I **DO IT**

DR. BECCA BABCOCK (PhD'11) finds inspiration in the stories we use to understand our lives.

HER BACKSTORY: Dr. Babcock describes her career journey as "a bit weird." She began grad school with dreams of eventually becoming a tenured professor, but partway through her studies she made two discoveries. The first was that she simply wasn't as in love with research as she originally imagined she would be. The second was that she was in love with teaching. Instructor positions, however, were not easy to obtain. So, while Dr. Babcock took all the part-time teaching contracts she could, she also followed other areas of interest—everything from running a café, to corporate training and instructional design, to working as an actor and producer for film and television. She was always happiest teaching, even as an instructor of science writing, "which is funny, because my background is all English and creative writing," she says. Now Dr. Babcock is the Assistant Dean, Student Matters in the Faculty of Arts and Social Science and a writing instructor in the Department of English, where she gets to spend nearly all her time with students, either teaching them directly or acting as a "problem untangler" by helping them find solutions to academic challenges.

"Storytelling is where my heart is."

HIGHLIGHTS: "Storytelling is where my heart is," says Dr. Babcock. "It's an organizing principle for a lot of the different ways that we live our lives, including teaching and learning." She says she tends to think of her classes as stories, as journeys she and her students take together. They may head in different directions at any given point, but at the end they all come together. And clearly the approach works. In 2022, she won the Sessional and Part-time Instructor Award for Excellence in Teaching. Dr. Babcock spends a good deal of time storytelling outside of the classroom as well. She's written for stage and screen and has produced her own short films. She's also the author of three books, the most recent of which is *Some There Are Fearless*, a novel released in April of this year. "We're all just drawn to stories," she says.

WHY I DO IT: "I love talking about what I'm passionate about, because I do love writing," Dr. Babcock says. She's thrilled when students share that passion and care deeply about writing. But she also enjoys connecting with students who feel insecure about their writing. "I really love working with students who have misgivings about writing and showing them that it's not this sort of divine talent, but that it's a skill that you can develop over time," she says. "It's about helping them to find ways to become better and to discover what they're already good at."—*AnnMarie MacKinnon* ■

NICK PEARCE

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SPOTLIGHT

Back in 2013, Dal alum **SEBASTIAN MANCHESTER** (BEng'12, MASc'14) could not make sense of it:

"How could 1.2 billion people around the world be living without access to electricity? After all, the technology exists, and the cost of solar energy and batteries was falling fast." He deduced it was a matter of accessibility.

A possible solution came to him a decade ago while he was working towards his second degree from Dal, a master's in applied sciences with a special focus on energy storage for renewable energy integrations.

Manchester collaborated with his friend and fellow engineer, Jeff Schnurr, who at the time was working on climate change adaptation solutions in Tanzania. There, the majority of people had cell phones but nowhere to charge them, and lit their homes with kerosene. "What if we used solar power to charge small, rechargeable battery packs—with just enough energy to power their basic necessities for a few days?"

"We're building a solution that will help light up the whole continent."

They didn't know if the idea would work but were willing to try.

Fast forward to today, and Manchester is the co-founder and CTO of Jaza Energy, a company powering homes in over 100 rural communities in Tanzania and Nigeria through a network of solar-powered recharging stations, or "Jaza Hubs."

"The Hubs are one-stop energy shops," says Manchester. "The solar panels on the roofs generate enough energy to charge battery packs for hundreds of homes, powering things like lights, TVs, and boomboxes for up to three days."

Jaza—a name of Swahili origin signifying "charge"—employs people from all over the world to see its mission through. "Our team spans from Halifax to Nigeria, Tanzania, and China." says Manchester. "We also employ over 100 'JazaStars,' who are women from the communities we serve that manage the Hubs. It's been incredible to see them all become real technology and business leaders in their communities."

Manchester says he's inspired by a combination of being able to build products that make a difference for people, while working alongside a team of smart and passionate people from around the world.

"I've been so lucky to have this experience," he says. "We're building a solution that will help light up the whole continent and make a dent in the 1.2 billion people without electricity. And to think, we're only just getting started."—*Allison Barss* ■

George Armoyan with his family

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Success *on* ***his terms***

Developer, investor, entrepreneur and mentor: **George Armoyan** has built not only multinational businesses, he has carried forward a family legacy that means even more to him

By Alison DeLory

It was Labour Day weekend in 2020, a time of strict lockdowns when no one knew what COVID would mean for the economy or more broadly, for our futures. But uncertainty wasn't holding George Armoyan (BEng'83) back. Armoyan, alongside his wife and business partner, Simé, and their sons, Sam (BComm'16), and George Jr., were putting shovels into the ground on undeveloped land in Mascouche, Que.

"We bought the industrial buildings in 2020, had them rezoned, built four buildings and created homes for 525 families," Armoyan says.

It's the sort of no-holds-barred attitude that has propelled Armoyan though a career as a developer, investor and entrepreneur. "I have the knack for smelling and finding deals," he says. "But I do make mistakes. I lose money too, so I play the law of averages and make more good deals than bad."

Over the course of his 40-year career, Armoyan has played his hand aggressively, taken risks, and battled bureaucracy when he thought it stood in the way of progress. He's regularly doubled down, and more often than not has been left with the winning cards.

He lives, he says, by a George Bernard Shaw (1856–1950) quote: *"Some men see things as they are and say, 'Why?' I dream things that never were and say, 'Why Not?'"*

It's an approach that hasn't won him unanimous praise, but it has earned him loyalty and respect from many, including those he holds in the highest regard—his family, his employees and his peers.

George Armoyan

"I pinch myself sometimes, wondering if this is a dream or reality."

"George can analyze a complex situation incredibly quickly. He always asks exactly the right questions and gets to the heart of any matter straight away. He is very courageous in his decision-making," says business leader and Armoyan's fellow Dal Innovates mentor John Risley. "During the energy crisis a few years ago, we talked about what the future for oil prices might be and how long the downturn would last. Once he had made up his mind this was indeed nothing but a cyclical turn in the industry, he invested boldly while others were running for the exits."

A recent bold investment was joining JC Flowers, a private equity fund out of New York, in buying a soured 480 billion rupees ($5.9 billion) loans portfolio in India for 112 billion rupees in December 2022. George and Simé Armoyan's company, G2S2 Capital Inc., was one of two parties (the second being Exor, an Italian company that counts Fiat and *The Economist* magazine amongst its holdings) that co-invested in the deal alongside JC Flowers. "I think it was the largest underperforming loan portfolio in India," Armoyan says, gleeful at having the opportunity to do something he's always loved—turning around non- and under-performing assets. "It was a good deal."

Armoyan also bought six hotels in Fort McMurray, Alta., this past December. He now owns 40 per cent of all hotel rooms in that city, and the day before his *DAL Magazine* interview, was in Fort McMurray checking them out. "I wanted to see what the hell I bought!"

When asked to reflect on how he came to have such huge stakes in both national and multinational enterprises, he simply shakes his head and says, "I pinch myself sometimes, wondering if this is a dream or reality."

It's in his DNA

Armoyan says he was born with persistence and tenacity—characteristics he honed out of necessity growing up in Syria in the 1960s and early '70s. His parents instilled strong family values in him. His father, Sami, was a watchmaker and store owner. But he says it was his mother, Anahid, who had more ambition. Beyond working in her husband's store, she also drove a car, something exceedingly rare for a woman to do in Syria, then or now. She lives in the U.S. today, and according to Armoyan, "still has the bug to get things done."

When George was a young teen the Armoyans, who are Armenian, immigrated to Boston, seeking peace and prosperity. George set about learning English, assimilating into the culture, and asking lots of questions as he plotted his future.

"I knew I wanted to be successful. I had the entrepreneurial bug. I knew what I wanted but not how I'd get there. It was through luck and perseverance," he says. "Also, my goals got bigger," he adds, chuckling.

Armoyan chose to come to Dalhousie after learning about it from a family friend and calculating the tuition savings it offered versus American colleges. He settled into Lower Sackville, where his family eventually joined him. Today, he travels extensively to Toronto, Alberta, the U.S., India and elsewhere, and maintains a primary residence in Montreal, yet he still considers Lower Sackville, where his father is buried, his hometown.

He studied engineering at Dal, even though he didn't plan on becoming an engineer. It was an education that "taught him how to think" and allowed him to flex his strong math muscles, he says. It also sharpened his negotiation skills, which were tested when he took his

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Armoyan's support and investments

Through financial support and investment of his time and expertise, George Armoyan has been an active player within Dal Innovates programs, mentoring more than 50 companies through Creative Destruction Lab Atlantic. With Armoyan's guidance, entrepreneurs have been able to focus their ambitions and launch massively scalable, seed-stage science and technology-based companies. These have included:

1. **Graphite Innovation & Technologies**, which creates environmentally friendly marine coating for seafaring vessels.
2. **Energy X**, which has developed innovative, in-house technology solutions that generate evaluation-grade energy assessments of building performance at scale.
3. **Jaza**, a company that is building a network of solar powered charging stations across Africa, where customers swap portable battery packs that power their homes and businesses.

"Jaza's development in Atlantic Canada was supported from the earliest stages by visionaries like George Armoyan and the CDL-Atlantic network. They truly make it possible to pursue bold ideas here while igniting a global impact."
—Sebastian Manchester, co-founder of Jaza

For more about Jaza, see Sebastian Manchester's alumni spotlight on p. 21 of this issue of *DAL Magazine*

4. **Eadie Tech**, which is designing ophthalmic diagnostic devices, improving ease of visual field testing for glaucoma patients, and improving reliability and cost efficiency for ophthalmologists. The VR-like, head-mounted device performs eye tests in the waiting room without supervision, allowing the doctor to see more patients in a day and focusing more on patients diagnoses/prognoses and less on performing the tests.

objection to having to complete a particular required course he felt was repetitive all the way to Dalhousie's Senate. (He lost his argument and took the course.) Outside of class, his memories of his student days include watching soap operas in Shirreff Hall and hanging out in the Green Room at the SUB.

Learning never stops

His education didn't stop after Dalhousie. Armoyan's been participating in the Harvard Business School Executive Education, President's Leadership Program for over 20 years, and he makes a point of learning something new every day.

He also re-established strong ties to Dalhousie through its Dal Innovates programming, which nurtures innovation and entrepreneurship in students, young alumni and faculty. In particular, he was a founding partner in Creation Destruction Lab (CDL) Atlantic, which is housed within Dal Innovates programs. "I like working with young people…it's invigorating to see their ideas," Armoyan says.

Jeff Larsen, Dalhousie's assistant vice-president innovation & entrepreneurship, acknowledges the influence mentors like Armoyan bring to Dal Innovates. "When you have people of this ilk who are actually engaging and mentoring tech entrepreneurs, well, you can't put a dollar value on that. It's the difference maker," Larsen says.

Armoyan considers himself a late adopter of tech. He says his work in "old economy" businesses like real estate was disrupted by technological evolution, and he at one time questioned whether tech would render him obsolete. CDL-Atlantic pushed him into his discomfort zone. "I wanted to venture into something I didn't know much about and face my fears."

He likes giving back to the community and believes in the innovation ecosystem and its necessity in Atlantic Canada. Armoyan's son George Jr., and his son Sam, who is also a Dal grad, are now working in the family's businesses and though George Sr. has no retirement plans, he's delighted to say he now works for them. His family, and creating jobs for thousands of people, are what he calls his greatest achievements. He credits himself only with having street smarts and making good decisions, the best of which, he says, was marrying Simé.

"I'm very proud of the way my wife and I have been able to raise our sons into good, responsible adults," Armoyan says. "Money comes and goes but children and family are more important." ■


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STOCK

TURNING THE TIDE ON CLIMATE CHANGE

BY MARK CAMPBELL

The science is clear. The Earth is warming, and the burning of fossil fuels is contributing to that trend, accounting for more than 95 per cent of the carbon released into the atmosphere. If that warming continues, parts of the planet will become uninhabitable in our lifetime.

But the outlook is not all doom and gloom. We have an invaluable ally in our effort to avert a climate catastrophe: the ocean. For years, it's been doing the heavy lifting in slowing climate change. It absorbs approximately 40 per cent of all the carbon that's released, while land-based carbon sinks, such as the rainforests, absorb just 3 per cent.

It's an impressive feat. But Dr. Anya Waite, associate vice-president research (ocean) of Dalhousie University, and chief executive officer and scientific director of Dalhousie's Ocean Frontier Institute (OFI), says emerging research shows the ocean is changing. And those changes may compromise the amount of carbon it's able to absorb. Equally troubling, the simulation models that are raising alarm among experts about ocean changes are built on limited data about the ocean. This means we don't have a clear picture of the situation or the necessary insights to improve it. And time is not on our side. At current carbon emission rates, we have less than nine years before we exceed the threshold that would keep the rise in global temperatures below 1.5 degrees—an important limit for averting a climate disaster. Given the increased risk for an event, or series of events, that could further compromise the ocean's carbon absorption capacity, it's possible that nine-year timeline could be accelerated.

"What we need to do," Dr. Waite stresses, "is reduce uncertainty about how the ocean is functioning so that we can rise to meet the challenges we face."

It's a challenge Dalhousie is meeting head on through its leadership of the multi-university research program, Transforming Climate Action: Addressing the Missing Ocean. The endeavour aims to help humanity turn the tide on climate change, an effort that will establish Dalhousie as the premier authority on the ocean's ability to absorb and hold carbon to help achieve a net-zero carbon emissions world.

A notable endorsement

There are several reasons to be optimistic about what Dalhousie will achieve through Transforming Climate Action. It's a comprehensive and strategic research program that leans into the talents of Dalhousie's world-leading ocean researchers across multiple faculties. It brings Dal's vast resources and deep expertise together with those of other prominent Canadian ocean research universities—Université du Quebec à Rimouski, Université Laval and Memorial University of Newfoundland—which have joined as partners. It has also received a major endorsement from the Government of Canada's prestigious Canada First Research Excellence Fund (CFREF) in the form of a seven-year, $154 million investment. This commitment from CFREF is particularly notable. To date, it's the largest research grant ever made to Dalhousie. It's also the federal government's second investment in the university through the CFREF program, which has the stated goal of "Helping Canadian postsecondary institutions excel globally in research areas that create long-term economic advantages for Canada."

"Transforming Climate Action will focus the world's attention and energies on the primary importance of the ocean in determining climate policy, shifting the global discourse and positioning the partner institutions as leaders in evaluating the impacts of climate change," says Dr. Alice Aiken, Dalhousie's vice president

“We now have the plan and the partnerships in place to thrive on a scale that was unimaginable until now.”
Dr. Alice Aiken

of research and innovation. “CFREF funding substantially enhances Dalhousie’s impact on the global stage by creating an ambitious research program that will attract new global experts to join the university’s world-leading, ocean-focused faculty and global partnerships that place Dalhousie at the centre of ocean-climate science, innovation and solutions.”

Transforming Climate Action has three ambitious, integrated goals. It will reduce international uncertainty about the ocean’s capacity to absorb and hold carbon. It will position Canada as a global leader in reducing carbon emissions and removing carbon from the atmosphere to mitigate climate change. And it will create people-centric adaptation solutions to ocean and climate change based on science, developed in collaboration with communities and informed by Indigenous ways of knowing. These goals will be achieved using an approach that spans institutions and disciplines, from law and biology to agriculture and computer science. To coordinate and amplify its impact, Dalhousie’s Ocean Frontier Institue will play an integral role in the leadership and management of Transforming Climate Action, connecting researchers to a global community focused on climate-ocean science, policy and advocacy.

“This is a landmark undertaking for us at Dalhousie,” says Dr. Frank Harvey, acting president and vice chancellor. “It’s one that we’ve been laying the groundwork for since the 1940s, when our ocean research and education efforts began in earnest. Over the years, we have developed leading-edge ocean research centres, created the Canadian Excellence Research Chair in Ocean Science and Technology, and built a team of more than 100 faculty members, researchers and scholars, many of whom support core elements of our work in this field. The standards we have set through our research and the knowledge we have accumulated establish a strong and durable foundation for breakthroughs in addressing many of the most pressing environmental challenges we face today. We now have the plan and the partnerships in place to thrive on a scale that was unimaginable until now.”

Although Transforming Climate Action is in its early days, this $400-million undertaking has quickly drawn international attention and interest. Major research centres, government agencies and non-government organizations are stepping up to help turn its goals into reality. In addition to the $154 million CFREF investment and collaboration with the participating universities, support will come from major global research, industry and government partners. They include the Woods Hole Oceanographic Institute, GEOMAR Helmholtz Centre for Ocean Research Kiel, Fisheries and Oceans Canada, the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, Canada’s Ocean Supercluster, among many others.

“The global reputation of our ocean and climate researchers has been critical in helping the university garner our initial commitments and partnerships for the Transforming Climate Action research program,” says Dr. Charles Macdonald, Dalhousie’s dean of science. “Because of our legacy for innovation and leadership in ocean research, the world knows we have the depth and talent to take on this work. With the support of the CFREF, our partners see we are gathering significant momentum and are throwing their support behind us to get it done.”

Filling the ocean knowledge gap

Making progress on climate change will require more insights on the changes that are occurring

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in the ocean's ability to absorb carbon from the atmosphere. Transforming Climate Action will focus its exploration efforts on the North Atlantic and Atlantic-Arctic gateways. These areas are not only geographically close for studying, but also account for approximately 30 per cent of the ocean's carbon uptake. Through Transforming Climate Action, researchers will increase their understanding of how carbon absorption works and the factors that affect it. They'll also gain insights into the potential impact of extreme ocean events, such as accelerated Arctic warming, and the role that marine ecosystems play in this process.

Dr. Katja Fennel is helping to remedy the ocean knowledge gap. She and her team will be deploying new sensor-equipped robotic devices in the Labrador Sea and the North Atlantic Ocean to measure properties such as water temperature, salt levels, oxygen levels, plankton and acidity. The devices are part of Argo, an international program that has been gathering data on ocean temperature and salinity for over 20 years. The program has almost 4,000 devices dotting the ocean from the South Atlantic to the North Pacific, which transmit data to shore via satellites. The Argo program is now adding biological and chemical sensors to these devices. The result is an impressive ocean observation network that will transform our ability to observe biological and chemical changes in the ocean and to better understand its potential in climate mitigation.

These data are helpful for researchers like Dr. Fennel. She is interested in phytoplankton—microscopic plant-like organisms that are the basis of the marine food web. They also play a key role in the ocean's ability to soak up carbon dioxide from the atmosphere and cycle it to the deep ocean. The fear is that global warming is causing the nutrients that plankton rely on to become stagnant. This means reduced circulation to the sunlit surface ocean, where photosynthesis can occur. This is a serious problem; if plankton are not well nourished and their numbers decrease, it could have a dire effect on ocean life, carbon absorption and climate change.

"We have to get a handle on what the ocean's carbon inventory is and how it is changing, because the ocean holds 50 times more CO2 than the atmosphere," Dr. Fennel explains. "If the processes in the ocean that keep the CO2 in there change even in a subtle way, that could mean a huge change in the atmosphere. This is why we need to understand what is going on. It's crucially important."

Added data will enable Dr. Fennel to develop more accurate predictive models. In turn, these models will enable more informed decisions for increasing the ocean's carbon absorption capacity—one of the aims of Transforming Climate Action. As much as that appeals to her, Dr. Fennel has something more ambitious in mind to advance the quality and amount of data gathered from the ocean.

"I think about how much weather forecasting has advanced over the past 20 years, thanks to more sophisticated models and computational power, but also sustained observation networks that steadily deliver data," she says. "Our field is a far cry from that. My dream is to see a big push to real-time observation streams that allow us to really describe what the ocean is doing at any given moment so we can predict how it will behave going forward. The more accurate our predictions are, the better equipped we will be to grapple with climate change."

For now, what Dr. Fennel envisions is a dream. But it illustrates what could be possible as a result of CFREF funding.

Boosting the ocean's superpower

As Dalhousie researchers like Dr. Fennel work to better understand the ocean's ability to absorb carbon, others are exploring ways to increase that superpower. One proposed approach is ocean alkalinity enhancement, a process that's often compared to giving the ocean an antacid. Adding alkaline substances, such as limestone, to seawater reduces harmful acidity in the water caused by increased carbon dioxide in the atmosphere. It also enables the ocean to absorb more carbon dioxide.

"There is a lot of cautious optimism about ocean alkalinity enhancement," says Dr. Ruth Musgrave, the Canada Research Chair in Physical Oceanography at Dalhousie. "It mimics the natural geochemical processes that have caused the ocean to take up so much carbon and to be such a large reservoir of it."

However, Dr. Musgrave says there are still many questions as to how this process will work. She and other Dalhousie researchers are trying to answer those questions in collaboration with Planetary Technologies. This Dartmouth, N.S., company has developed a unique alkalinity-based carbon removal technology that has proven safe and effective in the lab. The goal now is to use Dalhousie's Aquatron, Canada's largest aquatic research centre, to see if the same results can be achieved in an open-sea setting.

Dal oceanographer and professor Dr. Hugh MacIntye is conducting ocean alkalinity enhancement-related experiments to ensure the science behind it will be safe for life below the waves. He and his students are assessing the impact of added alkalinity on plankton. "There is a mass of literature on acidifying the ocean and its impacts," says Dr. MacIntyre. "But there is surprisingly little on raising pH with alkaline substances and its effect on plankton growth. What we want to know is whether they can accommodate a sudden rise in alkalinity or if they will be harmed by it."

If Dr. MacIntyre and his students find that plankton can accommodate this increase, the company will be one step closer to a viable technology that could help keep climate change in check.

Coastal in a different way

Meanwhile, environmental social scientist Dr. Kate Sherren says it's time to be coastal in a different way. The CFREF investment offers an opportunity to further explore how people living along the coast are experiencing and responding to climate-related changes. Through interviews, focus groups, surveys and social media analysis, she is gathering their opinions on adaptations ranging from restoring wetlands along the Bay of Fundy to retreating from the coastline altogether.

"We need to ask hard questions about our continued ability to inhabit the places we call home," says Dr. Sherren, a professor at the School for Resource and Environmental Studies at Dalhousie. "I know many of us have an emotional connection to our coastline, but we need to look at where we should pull back and leave space for ocean dynamism."

This is why the research being conducted through Transforming Climate Action will be vital. Insights on the factors driving climate and ocean change will enable Atlantic Canadian and other coastal communities to make informed decisions about how they'll adapt to that change. Those insights will also support further efforts by Dr. Sherren to shape the necessary policies, engagement and actions to help keep these communities, and their ways of life, safe in the face of more extreme weather events.

"We think, in our hearts, that we're going to have time to make decisions," Dr. Sherren says. "We think that the change is going to be gradual and that it's going to become clear when we need to adapt and pull back. But hurricane Fiona and the damage it caused to houses along Newfoundland's shores, for example, demonstrates that the time for action is now."

Supporting Indigenous-led research

Ultimately, it's questions about adaptation that Dr. Waite is most enthusiastic to address through Transforming Climate Action. She sees the program as an opportunity to raise public awareness about the impacts of climate change, which she believes will inspire more strategic and concerted mitigation efforts. Dr. Waite also sees opportunities for researchers and communities to share best practices and success stories for adaptation, creating a wealth of knowledge and resources for everyone to draw on. Research co-led by Indigenous researchers and organizations is a key piece of Transforming Climate Action, building on existing relationships at the four partner institutions. This will be further bolstered by support for relationship-building early in the project, culminating in a round of funding specifically for additional Indigenous-led research projects.

"This is an opportunity to have discussions about decolonization and how Indigenous ways of knowing inform climate change action," Dr. Waite says. "We are going to do this through several pathways, including direct engagement with our Indigenous colleagues, an Indigenous-led research call, and though the establishment of the Transformation Hub, based at the University of Quebec at Rimouski. Those conversations will not be easy, and they are going to take time. But they are important if we are going to achieve climate change solutions that promote equity, justice and resilience. The more we engage in those conversations, the more we can equip a new generation of students and leaders to approach these conversations with those concepts as their baseline."

A major step forward

With the CFREF investment in place and research underway, Dalhousie and its partners are working to secure further funding to achieve the goals outlined in Transforming Climate Action. Dr. Aiken believes the expertise assembled through this program and the potential to realize change will prove invaluable in garnering additional support. She stresses such support will be necessary not just to prevent a climate-related catastrophe, but also to strengthen Dalhousie's vital role in protecting the ocean.

"The Transforming Climate Action research program will solidify Dalhousie as a global leader in climate science, innovation and solutions by putting the ocean front and centre in the fight against climate change," says Dr. Aiken. "As Canada's leading ocean university, it's not just an opportunity to advance ocean and climate research; it's also our responsibility to the world." ■

As Canada's leading ocean university, it's not just an opportunity to advance ocean and climate research; it's also our responsibility to the world.

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We need to talk…

about Democracy

By Chris Benjamin

"If democracy is in crisis, why?" asked the CBC's Vassy Kapelos, a political science grad (MA'06), from the stage of the Rebecca Cohn. The event was the inaugural Stanfield Conversations, an annual speaker series that builds on the legacy of Robert L. Stanfield, a Dal alum, former premier of Nova Scotia, and leader of the federal Progressive Conservative Party.

The Stanfield Conversations build on Dal's leadership in an ongoing conversation about democracy, with work on the subject being done from a variety of faculty perspectives and research areas. The conversation continued with the second annual event on "Technology, Media Fragmentation, and the Crisis of Democracy in America."

A weighty topic, and one that took host Portia Clark and speakers Dr. Ron Deibert (University of Toronto), Dr. Elizabeth Dubois (University of Ottawa), and Dr. Kathleen Hall Jamieson (University of Pennsylvania) in many directions. In speaking with some of Dal's democratic experts, there were many overlapping observations, but imperfect consensus on the state of democracy in America and beyond.

Going back to Kapelos's question, is it a fair assessment that democracy is in crisis? There's a certain relativism innate in using the term "crisis"; the problems that give us anxiety today may not have registered in decades past.

"I don't think it's particularly worse today," says Assistant Professor Dr. Michael Halpin of the Department of Sociology and Social Anthropology, contrasting the FBI raids on former President Donald Trump's Mar-a-Lago residence to the Waco massacre of 1993 and the Oklahoma City domestic terrorist attack of 1995. He notes the 20th century was one "with many extremist movements and conflicts, a lot of authoritarianism, and yet a rise of democratic movements or social movements like Black Lives Matter."

Associate Professor Dr. Robert Huish of the Department of International Development Studies adds that democracy has been under threat throughout its history. Considering all forms of governance, "Going back to ancient Greece, we see democracies are often the shortest periods," he says.

What made 2022's Stanfield conversation topical was its focus on technology and media fragmentation, which act as a double-

"Going back to ancient Greece, we see democracies are often the shortest periods"
Dr. Robert Huish

edged sword. On the one hand there exists the potential to democratize media and share the power of influence, but on the other both are easily manipulated to spread misinformation, eroding public faith in governance and public institutions.

That decline in trust opens the door to authoritarianism. Even there, Dr. Ajay Parasram, an associate professor in the Department of International Development Studies, gazes further into the past to trace the roots of distrust in systems of governance in the United States, to a time before social media, after the September 11 terrorist attacks in New York City.

"Colin Powell making the case that Iraq had weapons of mass destruction," he recalls. "That democratically elected people could stand up and lie publicly. It gave rise to the kind of conspiratorialism we see today." During the Trump administration, a sitting US president so commonly spread misinformation he was banned from Twitter.

Dal experts draw links between that kind of political manipulation in the United States and recent events in Canada, where we saw the convoy protests across the country against COVID-19 vaccine mandates and related public health requirements such as public masking. While there are clear distinctions between mass protests against the Bush administration's 2003 invasion of Iraq and the convoys of 2022, Dr. Parasram does see "a common belief that we shouldn't trust our government."

EXPLOITATION OF APATHY SEWS DIVISION

In many parts of the world, justifiable erosion of trust in government has created a dangerous situation in which the populace is not enraged, but indifferent to what kind of government they have. "When that system fails to provide essential services, good jobs, clean environment, people lose confidence," Dr. Huish says. "A recent survey by *The Economist* Intelligence Unit found Latin America split between those who prefer living in democracies versus those who are indifferent."

Enter a brand of politician willing to "scapegoat problems on other people, communities—using racism and sexism." Most will disagree with such extreme positions, but that hateful rhetoric distracts us from "sensible conversation on inclusivity, a better world, progress," Dr. Huish says.

Dr. Halpin notes that in American politics, "there are people on the right wing who orient materials toward young men who are disaffected." Much of his research has focused on incels, or "involuntary celebates," members of an online anti-woman community.

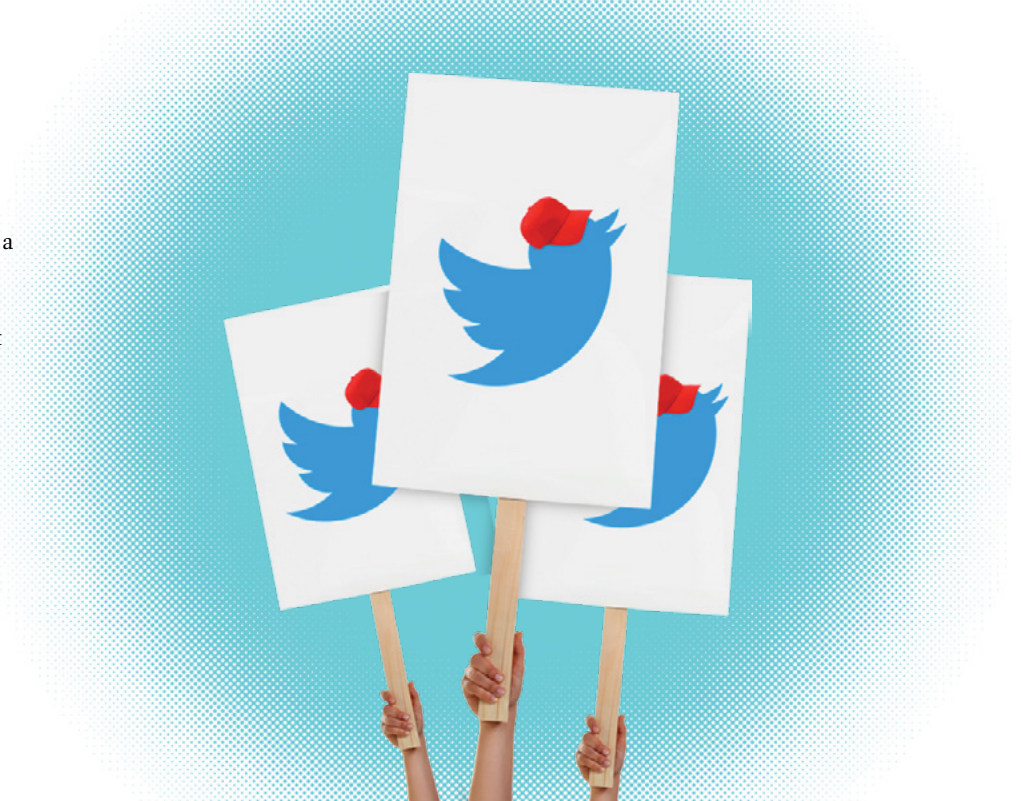
"Incels are big supporters of authoritarian leaders as long as they have policies that are punitive toward women," Dr. Halpin says. They celebrated last year's Taliban victory in Afghanistan and the overturning of Roe v. Wade, which opened the door to state restrictions and bans on abortion. Far-right politicians may not advocate policy with incels in mind, but their anti-woman stance is simpatico, and it further alienates the American public—62 per cent of whom disapproved of the overturning of Roe v. Wade, according to the Pew Research Center.

As Dr. Parasram points out, the divisions between left and right grow even as they share a general mistrust of the government, with little work being done to build community or find common ground. In the US, those divisions went very far for one side on January 6, 2021, when a mob of supporters of Donald Trump, who had lost the presidential election to Joe Biden, attacked the Capitol Building. The world watched televised public hearings of the United States House Select Committee on the events of that day and the former president's possible culpability.

"This is a major test for their constitution," says Dr. Lori Turnbull from Dal's School of Public Administration. "If the system doesn't punish corruption there will be a sense that we got this wrong. Yet many Republicans seem willing to back Trump."

That same level of threat to democracy does not exist, at the moment, in Canada. But Dr. Turnbull says we should hold off on patting ourselves on the back. We have the underlying problem of disengagement, apathy caused in part by an electoral system that sees majority governments elected with a minority of the popular vote. "The system provides rationalization for disengagement," she says. "'My vote doesn't count.'"

Recent scandals—SNC Lavalin and WE Charity—surrounding the sitting government give rise to further ambivalence. They also raise the important question of how we handle suspected bad actors. Dr. Turnbull notes that, while the US democracy is in a bad state, "the US constitution is built in a way that assumes bad faith, with so many checks and balances." It is designed to handle misbehaved politicians.



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"Our system assumes good faith," she says. "A lot of the restraints on decision makers are by convention."

Although the two systems are very different, it would be naïve of Canadians to ignore the elephant to the south. Turnbull points out the freedom convoys were partially funded by wealthy Americans. Many of the same funders had donated to Trump. "We can't pretend there's a container around the US," she says. Like with the incels, there is a cultural underbelly to antidemocratic forces that isn't always obvious, that politicians may not consider as they use dog whistles to appeal to certain voters.

THE AMBIGUOUS IMPACT OF SOCIAL MEDIA

None of these current threats to democracy are quantitatively different from the past. What's different is the means. "Social media has changed how it's done," Dr. Halpin says, "What's most concerning to me is corporate influence, what's published and what's not. Google and Facebook can supress information."

There is also a strong motivation for tech companies, as large corporations, to favour ideology that channels wealth their way, further stratifying the distribution of wealth. "Corporations in general have tremendous influence on our democracy," Dr. Halpin says. Such companies often influence all levels of media, social, print, and broadcast, which may be why so many outlets reported in August, 2022, when "The Bank of Canada Governor [Tiff Macklem]…encouraged companies not to increase wages."

Tobias Schminke, who is completing a PhD on comparative politics and is founder of the election observatory Europe Elects, shares that assessment. He started Europe Elects because as a European Union voter, he found polling information on EU politicians outside his native Germany surprisingly difficult to access.

Schminke says the spheres of political influence have globalized, not only with international parliaments like the EU, but also with multinational corporations having far-reaching influence over politics. "We have companies half the size of states, like Shell and Amazon, with little or no democratic control over them because they work across international borders, exploiting people and polluting."

The unionization movement at companies like Amazon and Starbucks may provide a check to that power, he says, but even the unions remain constrained by national borders. "They don't serve global workers in global companies. We are still stuck in our nation states."

In Europe Elects (and spinoffs Oceania Elects, Asia Elects, and America Elects), he has brought together 90 volunteers to compile and analyze polls and election data and share this information to a massive social media following—145,000 followers on Twitter alone. The organization serves as a democracy watchdog and advocates for thinking beyond borders to consider democracy globally.

Europe Elects shows how social media can be used to support democracy with legitimate, carefully researched information communicated in an accessible manner for the time-crunched modern human, going beyond partisan politics or traditional political structures.

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WANTED: NEW VOICES

Authoritarianism has been around at least as long as imperialism, and has always been built around a false narrative of a racial hierarchy. "The last 500 years are riddled with white supremacy," Dr. Parasram says. "The same period is filled with Black, Brown and Indigenous people fighting back. I am inspired by the Mi'kmaw Water Protectors. Internationally, the Zapatistas; historically, Indians resisting the British."

This history of colonialism, imperialism and authoritarianism is something Dr. Parasram wants people to learn more about, an important context to today's challenges to democracy. Each of these Dal experts emphasize the importance of what could be called modern media literacy—understanding the sources and context of news reports—which includes social media, but also a deeper understanding of world issues.

Part of that literacy is realizing the news is only a partial picture of reality. "It's easy from outside to mistake American mass media for the American public," Dr. Halpin says. Most importantly, that for every restriction of rights there is grassroots organizing—for example, to maintain access to abortion.

With social media, in addition to the proliferation of convincing fake news there is a heightened silo effect. "People aren't even reading about the same facts," Dr. Halpin says. "They're reading different news, focused on different world events." On campus, he focuses on training students to become "self-regulated learners," meaning they are able to properly check and cite sources.

"We set out to give our students a boot camp on how to approach and engage with real information and avoid disinformation," Dr. Huish adds.

Media and political literacy empower citizens. Dr. Parasram also wants to see people do something with that knowledge.

"Voting is choosing who you will struggle against," he says. "It may be more important than doing your laundry, but it's less important than protest." He especially urges people to support Indigenous sovereignty movements, which he sees as far more participatory than first-past-the-post Canadian elections.

Dr. Halpin agrees that direct involvement is essential, not only at protests. "Show up," he says. "Be involved, attend community meetings, vote. Contact government representatives, send messages to politicians advocating specific policies. Support the education system, where we learn to be discerning, engaged citizens."

When considering how democracies can protect themselves from authoritarianism and feel more like governance by and for citizens, Dr. Huish comes back to a fundamental purpose of creating a more equitable society. "Democracies are about transitioning power from the wealthy to the poor," he says.

Everyone must have the ability to see themselves as an elected official. "We shouldn't assume a politician is someone with many degrees and silver hair. But there are so many structural forces that discourage women, racialized, and Indigenous people from participating. Mumilaaq Qaqqaq, the former Nunavut MP, said she never felt safe in Parliament. Security harassed her because they didn't think she was an MP."

Having a vote alone is not enough. True democracy gives citizens control, meaning being an MP "should be an option for anyone, not necessarily as a lifelong career, but something you give it a shot and return to your world." ■

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HEARTS OF GOLD

By Allison Barss

DR. NADA HAIDAR
Paying it Forward

Halifax-based **DR. NADA HAIDAR** (BSc'93, DDS'97) says dentistry isn't just her career, it's her passion—one that stems from the influence of her hardworking, immigrant parents and her own desire to give back. Following some international volunteer work in recent years, Dr. Haidar was inspired after COVID struck to find new ways to help others locally, including her year-round work at the North End Community Health Centre's dental clinic.

Q. *What's one thing you really enjoy about your work?*
A. "I love how artistic dentistry can be. I'm artistic by nature, I think because both of my parents were hairstylists. Art filters into my work every day, whether I'm recreating a tooth, a smile, or just getting to work with my hands."

Q. *What's the most important lesson you've learned?*
A. "Over our lives, we accumulate 'things.' I've learned it's not about what you have. It's about what you've done, and how you can give back and help others. It's your legacy. For me, this was quickly realized after I began volunteering."

Q. *What's the greatest challenge you face, and how do you strive to overcome it?*
A. "It's incredibly challenging for me to see people who need something but can't afford it. Volunteering is how I overcome that—to help give them what they need. It started a few years ago when my daughter, Mya, and I went on a health mission to Honduras through Global Brigades. We visited different villages where I treated patients. When all travel came to a halt in 2020, I knew I had to focus my efforts more locally, and so began my work with the North End Community Health Centre here in Halifax. My volunteering has since bloomed into a passion. I've built trust with these patients, who just needed someone to help them out, to give them their smiles back."

Q. *What motivates you to carry forward?*
A. "I'm easily motivated by my time at the North End Community Health Centre, just from the appreciation alone. When I can give someone their teeth back, for free, it's profound; it's life changing. I know I was put on this planet to help make that life change."

Dr. Nada Haidar

DANIEL ABRIEL

IGOR YUSHCHENKO
Bridging Gaps

Halifax-based lawyer and Ukrainian native **IGOR YUSHCHENKO** (LLM'12) understands immigration law and the work required to move people to a new country. But in February of 2022 when Russia invaded his native country, things really hit home. It sparked a personal mission to apply his legal expertise to help fellow Ukrainians—including his own family—seek refuge in Canada. On the one-year anniversary of the start of the war in Ukraine, Yushchenko had personally helped with the immigration applications for over 200 families fleeing war. With the uncertainty of the future, he says his work to help fellow Ukrainians is just getting started and he is ready.

Q. *How did your time as a student help shape your career?*
A. "When I came from Ukraine to go to Dal, I wasn't sure what to expect of a new university experience coming into it. But quickly I learned how great Dal would be. The professors are so open, and they really want you to succeed. They care about your opinion, like there is no right or wrong answer. It helped build a confidence for me as I stepped into my career in Canada."

Q. *What aspect of your work do you most enjoy?*
A. "I genuinely like to help people. It brings me joy. That's why I enjoy immigration law, real estate law, and corporate law, because people can gain something from it. I want to see others succeed in life. When a client calls and says, 'Things are going well now thanks to you,' I know I've done my job."

Q. *What do you want others to learn from your story?*
A. "Anything is possible. As an immigrant myself, I didn't think I would stay once I finished my degree. Then someone told me that I couldn't practice law here, and something inside of me said to prove them wrong. That's a difficult thing—denying that it's impossible, accepting that it won't be easy and facing the challenges that may lie ahead. Immigrants need to know that; living your ideal life is not a club for only blessed and chosen people. Everyone has the right to shape their future."

Q. *What's next for you?*
A. "Like so many of us, I hope the war in Ukraine will finish soon. There will be a massive amount of work to do to rebuild Ukraine and to compensate people for their losses. I hope to be part of that team."

Igor Yushchenko

CODY TURNER

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JEREMY DUTCHER
Lighting the Way

JEREMY DUTCHER (BA'13) is a classically trained composer, performer, musicologist, and activist. As a member of the Tobique First Nation in New Brunswick, he has had a fundamental impact on the way the traditional tribal language of Wolastoqiyik is shared, transforming our understanding of Indigenous cultures and communities. A two-spirit individual, he serves as a role model for Indigenous peoples who identify as LGBTQIA2S+. Dutcher's 2018 debut album, *Wolastoqiyik Lintuwakonawa*, was awarded the 2018 Polaris Music Prize and the 2019 Juno Award for Indigenous Music Album of the Year.

Q. *What's the most important lesson you've learned?*
A. "So often in life, we're asked to play it small. To dull the flame for the comfort of others. What I've witnessed, as a composer and a performer, is that when I truly let it out, it pays off. People receive it. There's an understanding that each person is unique and brings something new to the family of humanity. It's our responsibility as people to have it uncovered."

Q. *What do you consider to be your greatest accomplishment?*
A. "I don't pin my personal value to receiving awards. It comes down to the intention of what you do. My culture is in the fight of its life right now, with less than 500 speakers of our language left. My biggest accomplishment has been taking the songs of my ancestors and performing them for my people, in my language, with the orchestra. Lifting our songs up to the highest level and having them received. Having my elders come out, weep, and give thanks. It's the feeling of connecting people back to what's been taken and what has been lost. There is urgency in the work, and the moment to do it is now."

Q. *What do you enjoy most about music?*
A. "Music cuts right to the heart. It cuts past all the things that are weighing on us—the sonic vibrations bypass all of that. Music comes from understanding. It's not just entertainment, it's a means of healing. A concert hall, then, is a healing space. It's a place where we can see a shared witnessing and through that, find a collective way of thinking and speaking. In concerts, we often see crowds sing together. It's the feeling of, 'we are together and music has brought us here.' As Indigenous people, more broadly, we haven't had enough of that shared experience. Growing up, it never felt impossible for me. My mom is an Indigenous woman, and my dad is not. But they love each other. If they can, why can't others? We need to be comfortable asking about things we don't understand and embracing what makes us different."

Jeremy Dutcher

CODY TURNER

HONOURABLE JUSTICE MONA LYNCH
Pathfinding for Justice

Honourable Justice Mona Lynch

CODY TURNER

In 2021 when the Taliban returned to power in Afghanistan, the **HONOURABLE JUSTICE MONA LYNCH** (LLB'85) quickly joined forces with other women judges from around the world to help their 250 female colleagues in Afghanistan find a way out. As a regional director of the International Association of Women Judges, Halifax-based Justice Lynch says it's her mission to ensure they all leave safely and find new homes in free countries.

Q. *What's the most important lesson you've learned?*
A. "You're never wrong to do the right thing. By doing your best, staying true to your values, and doing what needs to be done to help others, we can all make the world a kinder, fairer place. It's always been important for me to make a difference. Part of that work with the women judges in Afghanistan included a 24-hour Zoom call with members of the International Association of Women Judges where we worked around the clock to get the Afghan women judges evacuated. So, I suppose another important lesson I've learned is, 'never underestimate the power of a group of determined, old women in their pajamas.'"

Q. *Who has been your greatest role model?*
A. "My mother. She was generous, altruistic, and overall, a wonderful person. I learned a great deal from her and try to apply that to my own life every day."

Q. *Why have you focused your efforts in law?*
A. "My passion for law started in high school. I took a course in Grade 12 and really enjoyed it. I eventually came to Dal to study commerce and soon after, applied to law school. Once I became a lawyer, I spent a lot of time in courtrooms and always wondered what it would be like to be a judge, to be the one sitting on the other side of the room making the decisions."

Q. *What is your next big goal?*
A. "As part of the work we're doing with the women judges from Afghanistan, we've committed to work with them until they're all out of the country. There are 54 left to go. It's challenging now because there are not a lot of pathways out of Afghanistan, but we're working to find the best solutions for each of them. We'll continue this work until it's done, until they're safe."

ATHANASIUS SYLLIBOY
Finding Common Ground

Just eight years into their nursing career, **ATHANASIUS "TANAS" SYLLIBOY** (MN'20) has become a leader in their community, advocating for improved health outcomes for Mi'kmaq by breaking down barriers and lifting their voices. Particularly during the early days of the pandemic, Sylliboy placed a great focus on finding ways to keep their home community of Eskasoni (Cape Breton) safe. Their determination to bridge gaps between Indigenous peoples and the health-care system has resulted in other recent accolades, including the 2019 Nova Scotia Rising Star Award from the College of Registered Nurses and the 2021 Dr. Robert Strang Community Hero Award.

Q. *What impact do you wish to make in your community?*
A. "I want to strengthen the relationships between Indigenous communities, health care and society. I want Indigenous peoples to be treated with dignity, love, and respect. I see a lot of Indigenous patients coming into the emergency room who've already exhausted all other options before coming in. I want to provide care and build an awareness that helps Indigenous people know that they are worthy and safe. And I want this awareness to not just be felt in today's generation, but for the next seven generations and beyond."

Athanasius Sylliboy

Q. *What motto do you live by?*
A. "In my language there's an expression that goes 'mawi–apoqnmatultinej'. It means 'let us help one another, together.' Whenever I work with anyone—whether a fellow nurse, a community member or advocate–my grounding principle is that we need to work together. My views and expertise are equally as important as anyone else's, so let's use both of our strengths to work together, to benefit others and to find a solution. Whether it's improving the management of diabetes, improving blood pressure, or anything else, I don't believe in telling or talking at someone. I want to come together for that solution. I look at my personal relationships the same way—we need to meet in the middle."

Q. *What does this award mean to you?*
A. "As a two-spirit person, I feel I have a responsibility to help transform spaces where minorities can be more visible, and to bring opportunities for people to learn and to see themselves in those spaces. I want to share my culture, its language, its beauty, its stories—and to help rebuild trust. I need to be vocal to make change. Receiving this award is an honour and I hope to share my message and inspire others to know that anything is possible if you just stand up for what you believe in. I'm just getting started."

It is nothing short of inspiring to learn about the incredible work being done by our alumni to strengthen our communities, both here and abroad. Their stories are proof that it only takes one person to make a difference and to create lasting change.

We thank all members of our community who submitted a nomination for this year's Aurum Awards program, as well as the Dalhousie Alumni Association Awards Committee who were tasked with narrowing down an abundance of incredible submissions.

If you know an alum who deserves to be recognized for their accomplishments, whether in research and innovation, community engagement and leadership, or for their contributions to the social, cultural, and economic well-being of society, stay tuned for nomination information for the 2024 Aurum Awards, which will open this September.

Learn more at alumni.dal.ca/aurum ■

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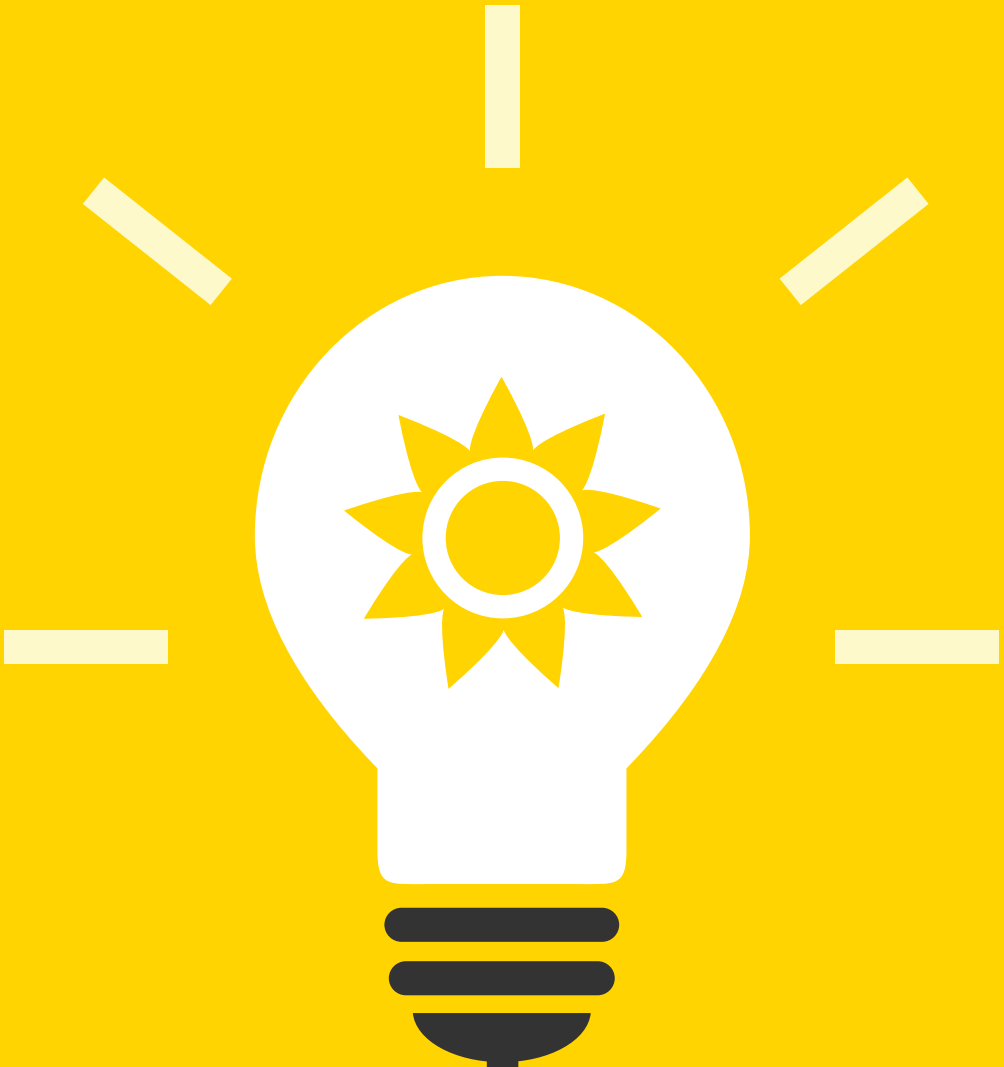

Seeing the Light

Clean technology's stellar future

BY MARK CAMPBELL

Dr. Mita Dasog in the lab

DANIEL ABRIEL

It is a question that researchers everywhere are grappling with: how can we meet an increasing global demand for energy—fueled in part by developing countries experiencing dramatic population and economic growth—and how can we do it in ways that eliminate dangerous carbon emissions? For Dalhousie researchers like Dr. Mita Dasog, one way is as clear as day: solar energy.

"Solar is a great renewable resource," says Dr. Dasog, associate professor and Izaak Walton Killam Memorial Research Chair at the Department of Chemistry. "It is freely available to us, and it is very abundant. In fact, we receive an entire year's worth of energy on the earth's surface in the form of sunlight in just 80 minutes."

But sunlight is not always available, which means we need ways to store its energy so that we can access it on cloudy days or at night. Moreover, the technologies we use to collect, convert, store, and distribute that energy are not affordable enough to be available to everyone everywhere at any time. Thanks to the work of Dal researchers like Dr. Dasog and the university's Clean Technologies Research Institute, that could soon change.

Since its launch in 2017, the institute has dedicated itself to developing technologies that reduce the world's reliance on non-renewable resources, limit waste production, and address the negative environmental impacts of our daily activities. These efforts include harnessing the full potential of solar energy. Through the development of innovative new technologies that transform sunlight into fuel, revolutionize solar cells, and make battery storage more feasible, the institute's researchers are making solar energy accessible, reliable, and affordable. And their ideas are helping to create a world powered by clean energy.

No hard cell

One such idea is being explored by Dr. Ghada Koleilat, associate professor at the departments of Process Engineering & Applied Science and Electrical & Computer Engineering. Instead of rigid, bulky solar panels that are expensive to install, her lab is developing a hybrid organic-inorganic solar cell technology that can be applied like a paint or a film to any surface.

"Our technology uses materials that are low cost and can be mixed and made into a solution that is ready to be used within one hour," explains Dr. Koleilat. "We can then apply that solution to a large surface area or a flexible substrate that can be rolled out without the expense and limitations of traditional solar cells."

Dr. Koleilat is using nanomaterials—materials so small they can only be viewed with special equipment—to develop her solar cells. The goal is to engineer a solution that is as long-lasting and efficient in converting solar energy into electrical energy as solar panels. That means researching different raw materials, but the one that most interests her is perovskite. Studies have found that solar cells made from these earth-abundant minerals are comparable to traditional solar panels for efficiency. But there are issues related to the longevity and lead content of perovskite, both of which Dr. Koleilat is working to address.

If Dr. Koleilat is successful, her efforts will enable adoption of solar energy to an extent previously unimaginable. More than benefiting Canadian households and businesses, the ability to paint solar cells onto any surface creates opportunities to make electricity available in places where costs and lack of infrastructure pose significant obstacles. That, Dr. Koleilat says, will change the world.

"In developing nations and regions that are in conflict, there is an urgent need for energy generation that is mobile, low cost, and versatile," she explains. "This is one way to target that need. This technology could bring energy to a refugee camp, provide lamplight so a child can read at night, or make it possible to boil water. It doesn't take much power to make lives in these areas better, so my main hope is to meet that need for energy."

Financial support for research like Dr. Koleilat's could make such hopes a reality within five to 10 years. But she cautions that her work is just one of many puzzle pieces that must come together to bring the world clean energy. "No technology is the one technology," she notes. "It will take several complementary technologies in an integrated system that takes advantage of all the renewable resources that we have. That is what we are doing at Dalhousie, and there is real beauty in that multipronged approach for me."

Fueling the future

As Dr. Koleilat transforms solar cell technology into more practical applications, Dr. Dasog is exploring another kind of transformation: how best to turn solar energy into a fuel, specifically hydrogen, so it's accessible when the sun is not.

"Hydrogen allows you to store solar energy for a very long time, so it is available whenever you need it," Dr. Dasog explains. "Hydrogen has a high gravimetric energy density, which means it can store large amounts of energy per given mass. That makes it great for uses such as operating large transportation vehicles like ships, trains, or airplanes, and it will play an important role in meeting our need for cleaner energy."

Although hydrogen itself is a relatively clean-burning fuel, it has long been produced using fossil fuels or precious metals. Neither process is sustainable nor cost efficient, but Dr. Dasog believes she has a solution. Drawing inspiration from photosynthesis—the process through which plants transform solar energy into food—Dr. Dasog is developing a material that can absorb sunlight and use that energy to make hydrogen from water, thus creating a clean fuel. Her approach uses silicon as a photocatalyst, a non-toxic element that is the second most abundant on earth.

Since silicon is already being made and used for other green energy applications, Dr. Dasog is optimistic about the potential impact of her work. Large-scale hydrogen generation pilot projects are currently underway in countries such as Germany, India, Japan, and South Korea, all of which are using different catalysts. Dr. Dasog believes that silicon-based catalysts can be used in similar setups. But the big question is whether the efficiency she has achieved in her lab will be matched in the real world.

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Master of Applied Science candidate Jay Deshmukh (both pages) in the lab

Dr. Ghada Koleilat wants to harness the power of the sun using nanomaterials

“In developing nations and regions that are in conflict, there is an urgent need for energy generation that is mobile, low cost and versatile.”

— Dr. Ghada Koleilat

DANIEL ABRIEL

"If our efforts are successful, then we can make affordable green hydrogen," Dr. Dasog says. "That will not only go a long way toward addressing climate change, but also create economic opportunities for Canada because we can ship that hydrogen to other countries."

While Dr. Dasog's project has significant economic potential, it's the ability of her research to fundamentally change how we meet the world's growing energy needs that fires her passion. It would facilitate the shift away from fossil fuels, which not only brings the promise of clean energy, but also would end the dominance of oil-rich countries in meeting international energy needs.

"There is some source of silicon available globally, which means we shouldn't run into the supply issues we have seen recently where one country has the monopoly over an energy resource," she says. "By continuing to bring the cost of green hydrogen down and improving the ability to scale up, we can take advantage of solar energy to address the challenges of climate change and energy storage and meet clean energy requirements."

A better battery

Although hydrogen offers the benefit of anytime, anywhere access to solar energy, batteries remain the best storage option for meeting the needs of our power grids and households. This is where Dr. Ian Hill hopes to make a difference. He is working on a more affordable, longer-lasting battery to charge the solar energy revolution.

Dr. Hill's research is focused on optimizing redox flow battery technology for solar energy conversion and storage. A battery is connected to two tanks of a solution that enables an electrical charge to flow between the battery's electrodes for charging and generating energy. The energy created through that exchange is either available for immediate use or stored for later use.

"When the sun shines, it charges the battery," says Dr. Hill, the chair and George Munro professor at the Department of Physics and Atmospheric Science. "When the sun's not shining, you use the battery to power things in your home. One advantage of this technology is that it is very affordable to scale up for larger uses if the solution in the tanks is inexpensive to produce."

Dr. Hill has been collaborating with chemists to test different low-cost organic solutions. But there is a more pressing concern on his mind: how to stop the gradual loss of energy in storage, charging, and releasing that contributes to short battery life.

"In my lab, we are charging and discharging redox flow batteries thousands of times to identify the factors which cause that loss," he says. "If we can do that, we can determine why that loss is happening and how we can stop it. That would make the batteries last longer, and the longer we can make them last, the less expensive they will be."

Charging a new generation

It's challenges like making a longer lasting battery that prompted Dr. Hill's increased interest in redox flow batteries. His research has resulted in vital insights that not only have the potential to enhance battery longevity, but also have cemented Dal's position as a leading centre for energy storage research. Dr. Hill's determination to push the limits of this technology is informed as much by a desire to make a difference as it is by the opportunity to collaborate with a new generation that is eager to advance clean energy adoption.

"Occasionally, there is a great new discovery that really pushes the field forward. But more often it takes a lot of people working together for a very long time to make incremental improvements to the technology," he says. "My goal is to help students realize that this is hard work. If it weren't, people would have solved this problem years ago."

One student who is stepping up to take on that hard work is Jay Deshmukh (BEng'21). A Master of Applied Science candidate working at Jeff Dahn-Michael Metzger-Chongyin Yang lab and co-supervised by Michael Freund. Deshmukh is also developing better battery technology to make widespread adoption of solar and wind energies possible. Using sodium-ion batteries as his medium, he is exploring the benefits of electrodes made from Prussian white analogues—compounds that can be made using low-cost materials such as iron, manganese and sodium.

"These are elements we are never going to run out of, so they are very plentiful for scaling up," Deshmukh says. "Few people have used similar chemistries before and reported promising performance. But the sad part is that it is not as energy dense as lithium-ion and the longevity is not as good as we would like. By tweaking various parameters, we hope to address both of those issues."

Deshmukh believes this will be doable at Dalhousie. He's impressed by the breadth and depth of clean technology research being conducted here, and by the many experts he can engage to help him realize his vision. "I saw that there were so many amazing initiatives going on here and realized I could either keep an eye on it or be part of it," he says. "There is unique expertise in all aspects of renewable energy, whether that is batteries or solar technologies. There is also an excellent partnership with Tesla for battery research that has been beneficial for giving us insights into industry expectations that we can use to tailor our research accordingly."

A ray of hope

Solar cells that can be applied like paint. Hydrogen fuel that harnesses solar energy. Long-lasting, affordable batteries. These are just a few of the technologies Dalhousie researchers are developing to bring clean energy to everyone, everywhere. In doing so, they are also fostering the next generation of clean technology leaders, who will continue to drive progress on one of our most urgent challenges.

"We need to eventually eliminate our dependence on fossil fuels," says Dr. Ian Hill. "If we are going to do that, we need solar energy. It's certainly the one we would like to use the most because it's the most beneficial and probably has the fewest negative side effects. I firmly believe we are going to get there as a society and that Dalhousie is going to play a major role in making that happen." ■

Prepared *to* Succeed

Dal's Faculty of Open Learning and Career Development helps its learners level up their skills

By Stefanie Wilson

"The certificate with Dal was a pretty incredible experience. It's changed my whole career."
—*Tammy Mercier*

DANIEL ABRIEL

"Folks, I'm out of here. I got accepted to the fire department."
—Mike Hall

Tammy Mercier is proud of the work she's doing at Atlantic Central, the organization that represents and supports the credit unions of Nova Scotia, New Brunswick, Newfoundland and Labrador, and Prince Edward Island.

"As manager of Sales and Member Experience Training," she explains, "I work with almost 2,600 staff across the credit unions in all four Atlantic provinces designing and facilitating training programs as well as coaching executive and leadership teams."

It's a role that's taken on a life of its own, thanks to Mercier's enthusiasm and dedication. And thanks to the skills and confidence she gained through the certificate in Adult Education (now the certificate in Adult Learning Fundamentals) she completed at Dal's Faculty of Open Learning and Career Development (OLCD).

"All my past accreditations gave me one part of what I needed. I have a finance degree and I have a political science degree and I've been a coach. But I hadn't actually learned to teach. I needed that teaching piece. The certificate with Dal was a pretty incredible experience. It's changed my whole career."

It's been nearly 30 years since **Mike Hall** began working with the St. John's Regional Fire Department. He laughs when he remembers how he found out he got the job. The Memorial University (MUN) administration office called him from class to pass along the good news message from his dad.

"I went back to my lecture and just walked in and said, 'Folks, I'm out of here. I got accepted to the fire department. I'm done.' So that was it. They all started clapping and applauding. Maybe there's still a locker back in university with my stuff in it. Because I don't think I cleaned it out."

For decades, Hall focused on his day-to-day work in the ranks of the fire service and never looked back. That changed when he, once again, got a message from his dad.

"I remember my dad coming over one time and he said to me, 'Did you ever hear about the guy who kept smashing himself in the head with a hammer?' I said, 'No.' He said, 'People used to ask him why do you keep doing that to yourself? And he said, Well, it feels so good when I stop.' He said, 'You're that guy. You know, it's time for you to grow up, take the reins of your career, and dig in.' So, I took that advice."

Hall returned to MUN to complete a project management certificate and then he spoke to his director in the fire department about becoming part of the management team. She told him to consider a Fire Leadership program to help him round out his skills. Hall's search brought him to OLCD for the Certificate in Fire Service Administration, a nine-course online program to help fire service officers develop their administrative and managerial skills.

SUPPLIED

Genevieve MacIntyre turns toward her computer screen and clicks open the bookmarks that take her to the concepts she wants to remember from the microcredential certificates she recently completed.

"I refer to these daily. They're reminders of what I've learned. And reminders of what I didn't know. There was a phrase that Crystal [the instructor] kept using in the program: 'You only know what you know, and you don't know what you don't know.' It's good to be aware that you don't know everything. All you can do is just keep learning."

MacIntyre is the manager of communications, marketing, and student engagement with Dal's Faculty of Arts and Social Sciences. She considers herself a lifelong learner and when she saw that OLCD was offering microcredentials that resulted in a certificate in equity, diversity, and inclusion, she knew it would be a great fit.

"Every day I create and prepare materials for diverse audiences. I also work with teams across the university and externally. It's important for me to have awareness of the histories and contemporary issues facing people in marginalized groups. I wanted to take the program to help guide my knowledge of how best to feature, engage with, and present opportunities to people from diverse audiences. And, when I'm called on to be part of hiring committees within my faculty, having the knowledge of equity, diversity, and inclusion is also important."

Microcredentials are one of the newest offerings from OLCD. They allow learners to achieve specific skills or competencies valued by employers. Successful completion is verified with digital badges that can be shared on social media and added to resumes.

"Having the badges on my profile shows my drive to keep learning and expanding my knowledge. It's nice to have proof of it. It's a way to show that I achieved another dimension to my knowledge, another form of education and certification."

MacIntyre says completing the microcredential courses in equity, diversity, and inclusion have helped her be more mindful of the impact her words might have on others. She also left the program with connections she didn't have before.

"Everyone was there for the same sort of reasons. We all wanted to grow our knowledge, to do better at what we're already doing, to learn what we don't know, and to share our experiences. There were a few other people from Dal in our cohort, people from across the province, the country—as far as Alberta—and beyond. It was just nice to connect with people from other places and in other industries and roles. And it was a safe space where everyone felt comfortable asking each other questions, and everyone was very respectful."

> "Everyone was there for the same sort of reasons. We all wanted to grow our knowledge."
> — *Genevieve MacIntyre*

Tara Van Lunen can't help but smile as she walks shoulder to shoulder with other Dal students rushing off to class. At first, she thought she would go back to school to expand on her background in business. But after she was accepted into the Transition Year Program (TYP) offered through OLCD, she started feeling a pull in a different direction.

"It was around the time the missing children were found on the residential school properties. So, with that in the news, and because I'm Indigenous myself, I started to change my mind. I decided I wanted to do something different. To be more hands on in the community."

Now Van Lunen is studying sociology at Dalhousie, with her sights set on getting into the social work program. She also plans to complete a minor in Indigenous Studies. When she looks back, she says it was taking those first few steps that were the most challenging.

"It was definitely a scary decision, but I felt 100 per cent supported in TYP. I just had a sense of fitting in. I mean, it's intense—it's six courses—but they prepare you and encourage you. Two of my professors nominated me for two different committees at Dalhousie. I've never

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been on a committee before. I've never felt this supported before."

Launched in 1970, with the goal of increasing the successful participation of Black and Indigenous students at Dalhousie University, TYP was exactly what Van Lunen needed to restart her academics, and the program has continued to give even after she completed it.

"Because my final grade average in TYP was good, my Dalhousie tuition has been waived. So now, if I want to go four years, five, six, seven, whatever it might be, it's absolutely free of cost. Getting rid of that burden right there is huge. And that helped me want to kick it up and do really well. Even though I was stressed out and it was a lot of work, it was like I could see that end goal and see a better life for me and my son."

The Faculty of Open Learning & Career Development has been offering accessible and transformative learning journeys at Dal for close to 40 years. As demonstrated by its name change in 2021, it's continually evolving to meet the needs of its learners, to prioritize inclusion, and to fulfill its commitment to lifelong learning. More than 500 courses are offered, either individually or as part of a certificate, and OLCD supports learners in achieving goals that range from preparing for university to improving English-language skills to taking the next step in their career.

Full Circle

When she decided to take on the certificate in Adult Learning Fundamentals, Mercier was also a single mom working 40-plus hours a week, so it was quite a commitment. But she could see the opportunities all around her, so she decided it was well worth the short-term pain. Mercier soon realized her classes were filled with people who were also pursuing success while living a full life.

DANIEL ABRIEL

"I decided I wanted to do something different. To be more hands on in the community."
—Tara Van Lunen

"I didn't realize what I was looking for until I came into this group of amazing people from diverse cultures, backgrounds, and even careers. We all kind of went through this really unique evolution together and it was it was pretty amazing, and the possibilities were endless."

She says the program has helped her build upon her successful years in the wealth management space, taking her career to a whole new level.

"It truly gave me credibility, for one thing. But it also gave me the bones or the framework to be able to say, 'okay, this is how I see the learning sessions working,' so I was able to create this training program because of what I learned at Dal. Every year it's growing and I'm adding products to the shelf and creating new tools. It allowed me to really open up this creativity that I didn't even know I had."

Hall is currently finishing up the courses he's taking to earn the certificate in Fire Service Administration. He's enjoying brushing up on all the budgeting, planning, and management skills he'll need to succeed at the next level of his career. And he's going to be completed faster than he originally expected.

"Chris [Fevens, project manager with OLCD's Recognition of Prior Learning] told me they might be able to give me some credit for prior learning. He told me I might get a full course or even two, but I could apply for up to three. I really put a lot of work into giving a real solid presentation in terms of who I am as a person, my learning background, what I've done, what I've seen, so they could really springboard me here. Within six weeks of the process, he came back and said, 'I've got some great news for you. We're going to give you full credit for all three courses you've applied for.' I said, 'You've got to be kidding me!' He said, 'Nope! You're one of the very few that we're going to give full credit to.' From nine courses down to six. That changed the whole dynamic of this."

For Van Lunen, coming to Dal was a matter of trusting her instincts and putting aside some of her past experiences to make room for her future success. For her, that leap of faith in herself has really paid off.

"I learned to believe in myself. And to believe in my ability to do well, even under pressure. I never really gave myself the credit. Or I would just give up easily. But there was just something about the TYP program and the support that I got that made me know that I could do it. Now I have confidence in myself." ■

CLASS NOTES

For additional class notes, visit **alumni.dal.ca/class-notes**

1960s

'60

Dr. David Cogswell (MD) has recently published his memoir, *How to Smuggle Children and Other Confessions of a Country Doctor*. The book's central theme concerns three generations of country doctors working in the same community, all of whom are Dalhousie Medical School alumni.

'67

Carolyn (Urquhart) Kerr (DBH, BN'69, MN'89) had five of her 11 grandchildren enrolled at Dalhousie in the 2022-23 academic year. Her late husband, Dr. Stephen Kerr (PhD'70), who had a distinguished career at the Bedford Institute of Oceanography and several positions at Dalhousie, also graduated from Dalhousie, as did her their three sons, daughter-in-law and nephew.

1970s

'72

Dr. Colin Levings (PhD) has been researching the work and travels of famed American marine biologist Edward Flanders Ricketts (1897–1948). Ricketts was co-author of the iconic book *Between Pacific Tides* and a friend of writer John Steinbeck. Colin has a connection with Ricketts, as in his student days he sailed around Alaska on the Western Flyer, the vessel Steinbeck and Ricketts chartered for their 1940 voyage to the Sea of Cortez.

'74

Gregory Zed (BSc, BEd'75, MSW'77) has spent 45 years working in addictions, mental health and suicide prevention. He has devoted his career to shifting preconceptions about mental illness and is an active volunteer in his community of Saint John, N.B. For his community service, he was honoured with the Queen Elizabeth II Platinum Jubilee Medal in December 2022. Gregory credits his parents for their hard work in putting five children through university, and Dalhousie for equipping him with the skills that have led to his impactful career and the local, provincial and national recognitions he has received.

'75

Lawrence (Laurie) Pasco (LLB) has had his book *Innovative Legal Service Applications: A Guide to Improved Client Services* published by the American Bar Association's Solo, Small Firm and General Practice Division. The book provides lawyers in all stages of their careers with his theories and numerous applications to improve client services in all practice areas. He has retired after practicing primarily family law in Ottawa for 42 years.

'79

James (Jim) Stewart (BA, MPA'81) was named the 2021 recipient of the Lieutenant-Governor's Award Medal for Excellence in Public Administration. The medal is awarded annually to a person in public administration who exhibits the highest standard of excellence, dedication and accomplishment. Jim works with the School of Public Administration at Dalhousie University and has created a large network across federal, provincial, municipal, non-profit and public sectors.

1980s

'83

Shannon Murray (BA), professor of English at the University of PEI, is the recipient of the 2022 Christopher Knapper Lifetime Achievement Award from the Society for Teaching and Learning in Higher Education. The award honours individuals who have made significant contributions to teaching, learning and educational development in Canadian higher education.

'84

William MacNeil FAAL (LLB) has accepted an honorary professorship at the T.C. Beirne School of Law, The University of Queensland, Brisbane, Australia, where he teaches in the LLB program. He remains an adjunct of the Law Discipline, Southern Cross University, having completed his tenure there as Dean of Law and the Honourable John Dowd Chair (2016-2021). He is also an adjunct of the College of Law & Justice, Victoria University, Melbourne, and has recently been made a fellow of the Law and Theory Laboratory of the University of Westminster, London, England. Bill says he continues to "live the dream" with his partner Pam in beautiful Byron Bay on New South Wales's iconic North Coast.

'85

Brian McConnell (LLB) was recently honoured with the Queen Elizabeth II Platinum Jubilee Medal. Brian retired from the practice of law three years ago and has recently published a book entitled *To Join the Ulster Division*, a biography about an Ulsterman from County Monaghan, Ireland, who served with the British Army in the First World War.

Seema Dosaj (BSc, MD'90) completed her family medicine residency at McGill, after which she joined the Montréal General Hospital's emergency room and Department of Psychiatry as staff for several years. For more than a decade, Seema served as an examiner for the College of Family Physicians of Canada and as a simulated office oral examiner for the LMCC/MCC licensing examinations. She practices family medicine in Toronto, is a clinical associate in the University Health Network Occupational Health Assessment Program and is the vice chair for the Ontario Medical Association's Solo Family Practice Medical Interest Group. Seema is looking forward to semi-retirement in Halifax.

'87

Karen (d'Entremont) Lindsay (DDH) retired in October 2022 after 35 years in private practice. She spent all 35 years of her career practicing dental hygiene in her hometown of Yarmouth, N.S.

1990s

'98

Pierre J.Y. Gagnon (LLB) is the author of a chapter on language policies in *La terminologie, une approche linguistique*, recently published by Éditions JFD. In chapter 15, Mr. Gagnon explains the vast topic of language policies and rights to future members of language-related professions (translator, terminologist, reviser).

2000s

'00

James Boxall (MA, MLIS'06), the Dalhousie University Libraries Geographer and Map Curator, was recently honoured with the Queen Elizabeth II Platinum Jubilee Medal for service to education. Over 30 years, James has taught in numerous programs at Dalhousie, including Earth and Environmental Sciences, Information Management, Planning and Marine Affairs. He was instrumental in the creation of the Dalhousie GIS Centre.

'03

Dr. Rakesh Arora (PHD, PGM) was recruited by UH Harrington Heart & Vascular Institute to lead cardiac intensive care units and cardiac surgery research. Dr. Arora serves as director of UH Harrington HVI Perioperative and Cardiac Critical Care and as research director of cardiac surgery.

'04

Ameeta Vohra (BA) worked for the International Ice Hockey Federation (IIHF) covering the 2023 World Junior Hockey Championships in Halifax, managing social media content and writing stories. This was a tremendous experience that allowed her to represent her home province on the international stage, while in her own backyard.

'05

Dr. Sarah Cook (MD) has been appointed as Chief, IWK Department of Family Medicine – Maternal Newborn Care, a shared position with Dalhousie Department of Family Medicine.

'08

Jarvis Googoo (LLB) was honoured with the Queen Elizabeth II Platinum Jubilee Medal in December 2022 for his work in sharing/promoting Mi'kmaw education, peace and friendship, and truth and reconciliation.

'09

Prabh K. Banga (MREM) is hosting a new podcast called *Road to Net-Zero*. The podcast explores our journey toward achieving carbon neutrality, and how our leadership is embracing sustainable construction practices.

2010s

'14

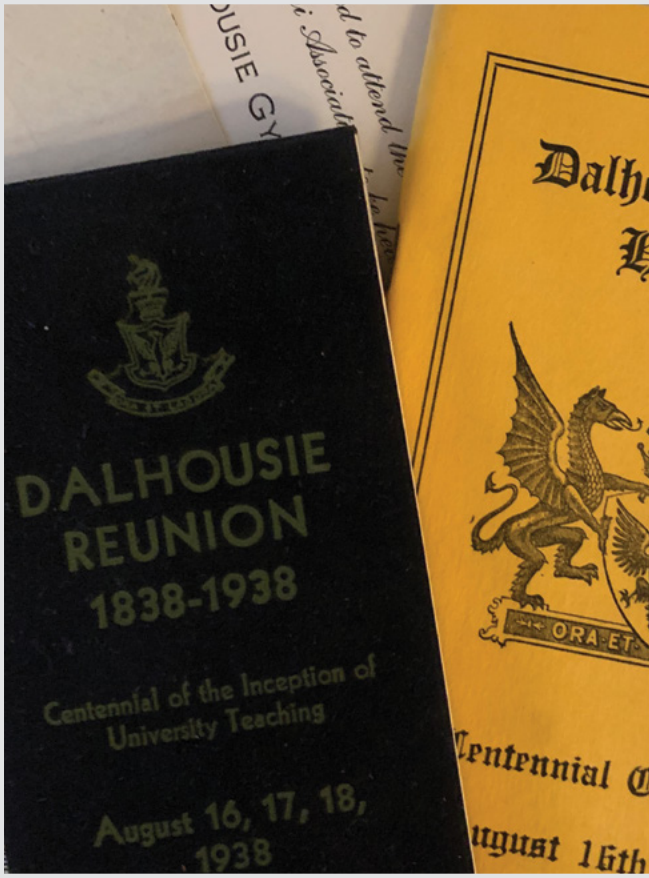
Jesse Albiston (BComm) is the co-founder of Bitstrapped, an MLOps (machine learning operations) provider. Jesse is also working on vision intelligence, data pipelines and Google Cloud infrastructure for Spot, the robot dog from Boston Dynamics. If you are you looking to get into Cloud or start your own company, Jesse invites you to connect on LinkedIn.

'18

Dr. Bernard Burgesson (MD) has won a year-long orthopedic surgery fellowship at Harvard University that will begin in August 2023. He will work mainly at Massachusetts General Hospital doing foot and ankle reconstruction, ankle replacements, full foot deformities and correction, and some trauma.

'19

Zaid Al Rayyes (BEng) has decided after three years as an engineer to return to Dal for an honours project in chemistry. Zaid writes that although it may seem at first odd that a mechanical engineer wants to study chemistry, the two fields are very complementary for what he aims to do, which is finding the best way to manufacture a material and produce it at an industrial scale.



NICK PEARCE

Just some of the paraphernalia from past Dalhousie reunions held in the archives. Learn more on page 9.

'17

Jasveen Brar (BSc) has been named a Top 30 Environmental Educator by NAAEE, Top 25 Environmentalist by Starfish and holds a Sovereign's Medal for Volunteers from the Governor General of Canada. In 2022, she was also named a Top 30 Under 30 Sustainability Leader by The Corporate Knights.

'19

Allison Munday (BA) and Dal Department of English professor Tom Ue have co-written an essay for *Paper Trails: The Social Life of Archives and Collections*, an open access living book edited by Andrew W. M. Smith and published by UCL Press that bridges the gap between research communities "to open up the world of historical research."

Josh Ryan (BEng) is now a practicing professional engineer after three years of working at Vale's T1 and T3 Nickel Operations in Thompson, Manitoba. Josh thanks the mineral resource engineering class of 2019, Dalhousie University, his previous and current employers and his friends and family for supporting his journey to this key professional milestone. He looks forward to following along with the professional and personal journeys of his peers.

'20

Dr. Nancy Khalil (PhD) has published a research article in DCDS-B, a top journal publication series of the American Institute of Mathematical Sciences. ■

FACULTY NEWS

Agriculture
Architecture and Planning
Arts and Social Sciences
Computer Science
Dentistry
Engineering
Graduate Studies
Health
Law
Management
Medicine
Open Learning and Career Development
Science
University Libraries

APPOINTMENTS AND RETIREMENTS

Alayna R. Kolodziechuk is the new director of the *initio* Technology & Innovation Law Clinic. She is a lawyer and Dalhousie alum with 10 years' experience advising businesses and not-for-profits in the creative and tech industries.
Dr. Ian Epstein (DMNS) and Dr. Samantha Gray (DMNB) have been appointed as the first Faculty of Medicine assistant deans of professional affairs, effective November 1 and December 1, 2022, respectively.
Dr. Kirill Rosen has been appointed as Faculty of Medicine assistant dean, graduate & postdoctoral studies for a five-year term, effective January 1, 2023.
Dr. Leah Jones (MD) was appointed academic director of Black health in Dalhousie's Faculty of Medicine.

AWARDS AND HONOURS

Dr. Israat Haque, associate professor in Computer Science, won the Thinking Forward Award at the Digital Nova Scotia Tech Forward Awards. This award recognizes Dr. Haque and her PINet lab for their exceptional work in creating a robust technology pipeline from Dalhousie University and designing interconnected spaces that enhance our lives.
Dean Dr. David Gray received Queen Elizabeth II's Platinum Jubilee medal. Dean Gray has a passion for agriculture and a true connection and appreciation for his community. He has served as dean of the

Faculty of Agriculture for the past nine years.

Shawna Paris-Hoyte, ONS, KC, with Dalhousie Legal Aid Service (DLAS), was awarded the Nova Scotia Barristers' Society 2022 Distinguished Service Award. As a public servant and volunteer, her commitment to community spans almost five decades.

Dr. Blaine Cleghorn, the recently retired associate dean of clinics in the Faculty of Dentistry, has been recognized with the Association of Canadian Faculties of Dentistry 2023 Distinguished Service Award.

Dr. Letitia Meynell (professor in the department of Philosophy and Gender and Women's Studies program) is the recipient of the 2022/23 Faculty of Arts and Social Sciences Award for Service Excellence.

Dr. Liesl Gambold (associate professor in the department of Sociology and Social Anthropology and coordinator of Gender and Women's Studies) has won the 2023 Canadian Anthropological Society (CASCA) Award for Teaching Excellence.

COMMUNITY AND CONNECTIONS

The second edition of **Here We Code Month** took place in May 2023, featuring a collaboration of on and off campus partner, showcasing Nova Scotia's vibrant digital landscape through a series of exciting activities and events.

Faculty of Dentistry DentDays will take place October 27-28, featuring a Nova Scotia kitchen party, reunions, CE day, luncheon, tours, and Outstanding Alumni Awards. Save the date!

IN MEMORIAM

The School of Social Work is deeply saddened to share news of the passing of **Dr. Joan Glode** this past March. A Dalhousie honorary degree recipient (2009), Dr. Glode was a well-known and beloved leader who deeply improved the lives of countless First Nations families and children. She had a long and celebrated history with Dal and the School of Social Work: she was the first Mi'kmaq woman in Nova Scotia to receive a Master of Social Work degree and, in addition to teaching as a session instructor, was instrumental in developing the undergrad degree program offered to Mi'kmaq students. Her vast career accomplishments are many, including her role as the founding executive director of Mi'kmaq Family and Children's Services in which she oversaw service support to Mi'kmaq communities in Nova Scotia and extended the organization's reach to serve all Indigenous families in the province. Dr. Glode received the Aboriginal Achievement Award and the Order of Canada in 2009 and represented the Mi'kmaq as an Olympic Torch Carrier for the Canadian Olympic Games.

You may submit a **FACULTY NEWS OR CLASS NOTES NOTICE** by emailing classnotes@dal.ca

Inspired by experience

The second time she travelled to Türkiye from her home country of Brazil, the trip was cut short when an explosion compromised the country's security status. But Patricia Porto de Barros Ayaz had enough time to notice the country had changed since she'd last been there and she was inspired to learn more.

"This was during the civil war in Syria and many refugees were going to Türkiye. I saw before and after the influx of refugees, and I got interested. I wanted to know why they couldn't go further, couldn't go to the European Union."

Her drive to understand eventually brought her to Dalhousie where she could work on her PhD with Dr. Ruben Zaiotti, an associate professor in the Department of Political Science who focuses on migration management and border control.

"It's a really great match. I am so lucky because, in addition to having a strong background in these topics, Dr. Zaiotti has also been a great supervisor."

It wasn't the only time Porto de Barros Ayaz had an experience that motivated her to act.

Her move to Nova Scotia meant filling out paperwork that didn't quite capture her identity, so Porto de Barros Ayaz became a research assistant at Immigrant Migrant Women's Association of Halifax on a project designed to ensure the health-care system responds to the needs of the changing population of Nova Scotia.

Once at Dal, she signed up to be a mentor in the Together@Dal (grad edition) program because she had such a positive interaction with her own mentor.

"I was in Türkiye during the pandemic and my classes were all online and he helped me feel connected. Now that I know a lot about the Canadian experience, I too want to help others."

Porto de Barros Ayaz is expecting to complete her PhD in the next year or two and says there's no limit to where it might take her.

"As a researcher you can work on many things. Although my studies are related to migration and human rights, my skills can be used in many different ways."

For now, Porto de Barros Ayaz is looking forward to making the most of her experience in Nova Scotia.

—Stefanie Wilson ■

"The campus is so beautiful—I walk the whole way across campus looking around with a happy kid face because I still cannot believe it."

NICK PEARCE

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