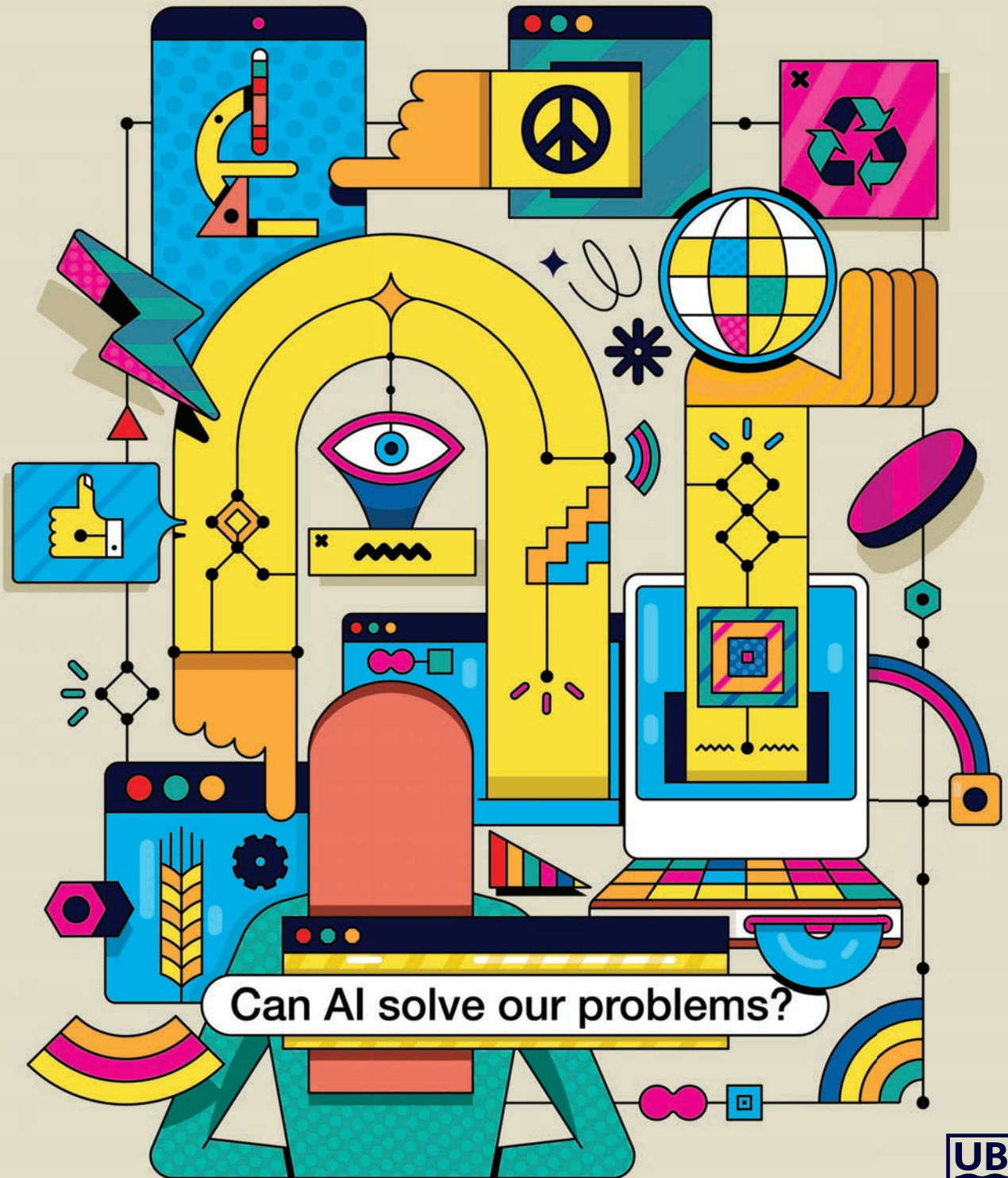


The University of British Columbia

MAGAZINE



Can AI solve our problems?



Editor's Note



PROMISE AND PERIL

The development of artificial intelligence (AI) is an extraordinary feat that in the space of just a few years has profoundly changed how we experience the world and interact with one another. In many ways the technology serves us well – bringing greater efficiency, access, connection, and convenience – and its potent capabilities offer hope for solutions to many of the most intractable problems society faces.

But as AI advances and becomes more deeply embedded into our lives, there is a growing unease around the ethical issues and potential threat it poses. Even some of those at the forefront of its development have expressed existential angst. And when headlines focus on the prospect of future generations of AI escaping our control or being used for malign ends, it's easy to overlook the fallout that is already here. AI has become integrated into almost our every waking (and sleeping) moment through hard-to-resist, commercially driven platforms that engage and serve us but also track us, invade our privacy, and commodify us. It is used to curate our content and chaperone our social interactions. And the use of culturally narrow datasets to train algorithms raises ethical concerns about it being unrepresentative and prone to error – magnifying social inequalities rather than reducing them.

As usual, the problem isn't the technology so much as unscrupulous humans vying for a piece of the digital goldrush. But the upside is that with the tech now "out there" and relatively cheap to deploy, AI can be applied to an almost limitless range of non-profit goals with human wellbeing at heart. It presents an unprecedented opportunity to improve our world and distribute the benefits of human achievement more broadly. Every day, an army of dedicated people tasks AI with finding solutions to complex problems such as climate change and food insecurity, while its integration into healthcare has already saved countless lives.

Whether AI is our downfall or our salvation depends on whether or not we can universally and effectively regulate its development and usage, and establish a standard of transparency, fairness, and accountability. It's a tall order (some would say impossible) but an even greater responsibility.

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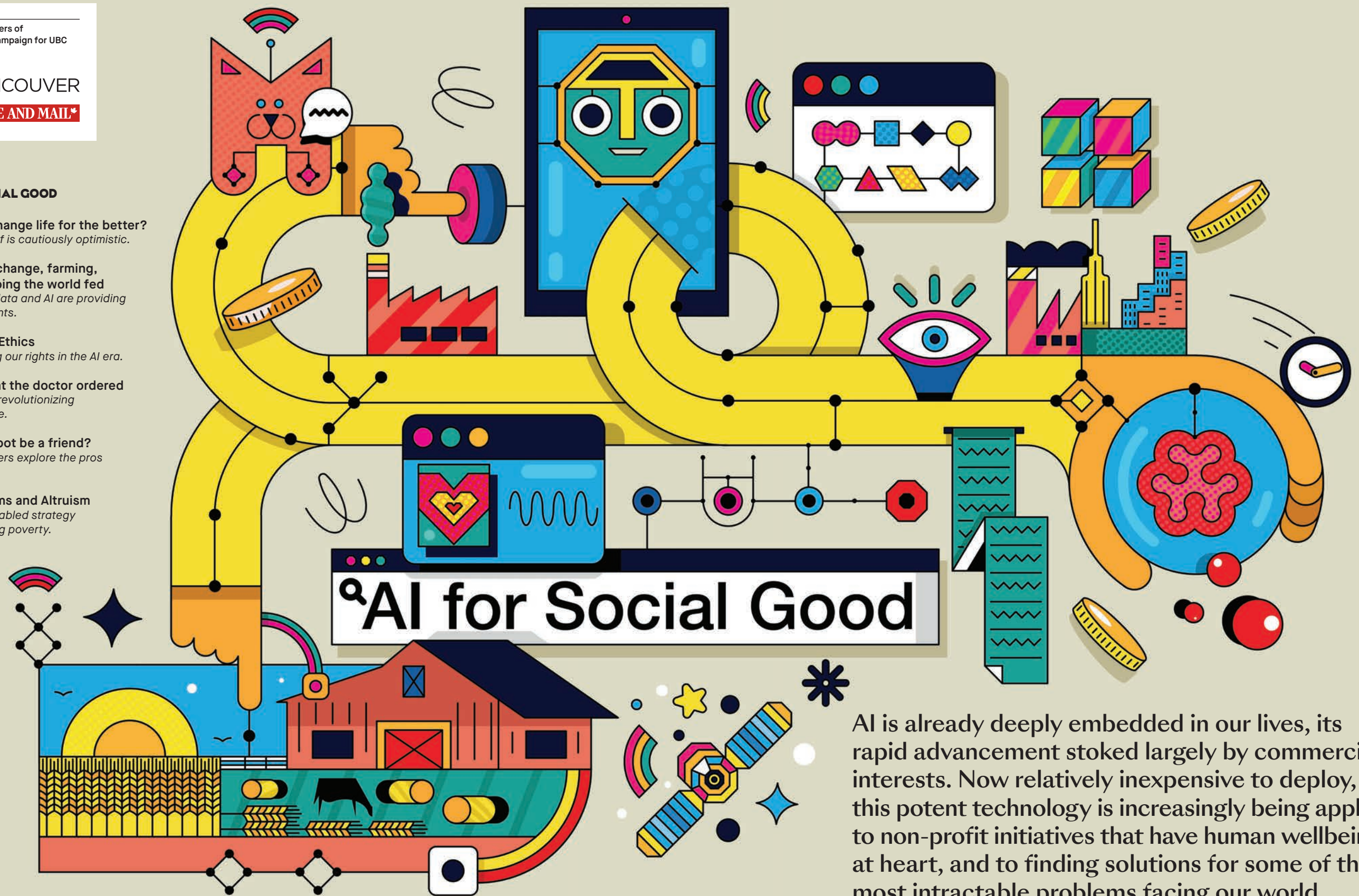
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AI is already deeply embedded in our lives, its rapid advancement stoked largely by commercial interests. Now relatively inexpensive to deploy, this potent technology is increasingly being applied to non-profit initiatives that have human wellbeing at heart, and to finding solutions for some of the most intractable problems facing our world.

ILLUSTRATION BY JAMIE CULLEN

Can AI change life for the better?

A UBC prof is cautiously optimistic.

BY RICHARD LITTLEMORE

of Richmond Hill after five years as one of those band kids (clarinet and guitar), Leyton-Brown says his first inclination was to study philosophy. But once at McMaster University, he cogitated on his prospects and switched his major to computer science, graduating with a BSc (philosophy minor) and enough academic acclaim to go to Stanford University, where he studied under computer scientist Yoav Shoham and collaborated with the Nobel Prize-winning economist Paul Milgrom.

Even there, Leyton-Brown maintained his philosophical bent. But instead of working directly on the meaning of life, he turned his attention to game theory, the mathematical study of how other people make meaning of life – or at least how they make strategy.

If you think of economics as a branch of math that tries to understand how people make decisions, the calculations are fairly straightforward if you're only looking at one person or at people who all share the same interest. Game theory steps it up to looking at the dynamics of conflicting interests, which gets hard when there are two people, and harder still when there are more.

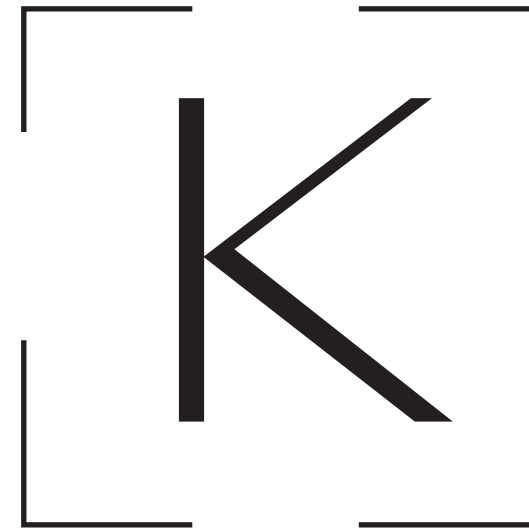
But, Leyton-Brown understates, "The internet facilitates a wide range of interactions that are larger and more complex than traditional analysis can handle. My research extends game theory analysis to internet scale. It focuses on computational tools, auctions, and fast algorithms for solving hard problems."

This is where you require the brute force – and, often, the colossal expense – of AI. As Leyton-Brown soon learned, you can get computers to beat chess grandmasters or to create large language models that write pretty credible essays. But it will cost you. A recent paper from Stanford University's Institute for Human-Centered Artificial Intelligence reports that, "OpenAI's GPT-4 used an estimated \$78 million worth of compute to train, while Google's Gemini Ultra cost \$191 million for compute." Given that level of expense, Leyton-Brown says, "It's clear that AI research is focusing on problems where there is money." He also says, "It would be nice to put the same energy where there isn't money."

At least part of the time, that's what he does, pointing out that it's a privilege of being an academic: "You don't have to work only on problems that are financially important for corporations." In fact, he sees a moral obligation and an historical opportunity to leverage AI to benefit underserved communities, particularly in the developing world.

In addition to teaching a UBC graduate-level course about AI for social impact, Leyton-Brown has done a fair amount of hands-on work on what he calls "socially beneficial market design." For example, during a sabbatical in Uganda, he noticed that a lot of subsistence farmers, and especially those in rural areas, were failing to sell their produce or having to accept a terrible price, while buyers elsewhere were overpaying or going wanting, and he thought, "We could do better."

Working with a local partner, he developed Kudu, a mobile app that enables farmers to locate customers,



KEVIN LEYTON-BROWN is an optimist about artificial intelligence (AI), but he doesn't present himself as such. On the contrary, the professor of computer science and director of UBC's Centre for AI Decision-making and Action (CAIDA) assumes a position that is deeply philosophical. When talking about the potential of AI as a force for good, he says, "You have to have humility. You have to avoid the colonialist impulse to say this is going to make life better."

But when he starts talking about his own work advancing AI for social impact, for benefiting currently underserved populations, and even about the potential spillover effects of AI that has been developed for purely commercial purposes, Leyton-Brown keeps giving himself away. He's pretty sure AI is going to make life better.

His philosophical urge seems to be hardwired. In the mid-1990s, finishing high school in the Toronto suburb

and customers to find supply. Best of all, the app allowed everyone to agree on a benchmark price because it turned out that “people needed good price data more than they needed matchmaking.” When buyers and sellers both have better information, they both win.

The applications for this kind of AI-assisted innovation are innumerable. Leyton-Brown has also applied AI to improve peer-grading systems for large classes; to direct resources to charities such as food banks who need them most; and to automatically identify unexpected forms of bias in machine-learning systems, such as face recognizers. Graduate students in his AI for Social Impact class used AI to identify regions of Vancouver’s downtown core where drivers could save time, reduce traffic congestion, and lower greenhouse gas emissions by parking in city-owned off-street parking lots rather than in on-street metered spots, and presented their results to City Hall.

In one of his largest projects, Leyton-Brown designed the AI algorithm for a US Federal Communications Commission auction of broadcast radio spectrum that netted governments in the United States and Canada more than \$7 billion. Governments north and south of the US border divided the broadcast spectrum up years ago, mostly giving it away to radio and television stations and then regulating the industry to ensure that signals didn’t overlap and create interference. But as mobility applications exploded in the last 30 years, there’s been increasing demand for that virtual space. Government tried placing new users in higher frequencies, but even there they started running out of room. And besides, high-frequency signals can’t pass through buildings. To penetrate concrete, you need the long-wave, low frequencies.

Reorganizing this scenario was complicated and potentially super expensive. Even though many television stations were hardly using their spectrum (because most of their clients had moved to cable), they didn’t want to just give it up. So, government set about trying to buy back and redistribute all of that virtual space – doing a simultaneous deal with 2,000 television stations in every heavily overlapping jurisdiction north of the US-Mexico border. They could never have managed the incredibly complicated sale without the enormous AI assist.

The takeaway from all this, Leyton-Brown says, is that AI can bring incredible benefits, not always because people are trying to use



KEVIN LEYTON-BROWN

Professor of computer science; director of the Centre for Artificial Intelligence Decision-making and Action (CAIDA); CIFAR AI Chair (Alberta Machine Intelligence Institute); Fellow of the Royal Society of Canada.

RESEARCH FOCUS

Computational game theory, market design, and machine learning.

OF NOTE

Widely recognized for his contributions to AI and machine learning, with particular focus on the design and operation of electronic markets and on teaching computers to design new algorithms – essentially, to program themselves.

it for good, but because “it’s basically free labour.” And as AI finds more applications, “living standards will rise; it’s a question of how we want to distribute the gains.”

Leyton-Brown also says he isn’t worried about big AI innovators hoarding the benefit. He says, “AI is expensive to make, but cheap to deploy.” As the viral distribution of ChatGPT demonstrated, “it’s hard for these things to be bottled up or controlled by a small number of people.” And once a new tech is loosed in the wild, “you can’t limit its access or what it gets used for. As a big complicated thing that we all get a piece of, AI is a kind of democratizing force.”

The question now is where else can AI have the best effect, for social as well as commercial advantage? Leyton-Brown looks to what he sees as an obvious area of application: mitigating climate change, a global and hugely complicated problem that nevertheless has findable solutions. Most especially, he says, we should be able to figure a way to “reduce carbon output without tanking the economy.”

There are also areas that are less predictable but – to Leyton-Brown, at least – obvious once you bring them up. For example, there is promising research using AI to analyse electrocardiograms to seek out heart and circulatory issues that even the best radiologists can’t identify as effectively. Leyton-Brown looks at it as a pretty direct application of machine learning, where you can train a computer with hundreds of thousands of previous scans and ask it to identify patterns.

And if those kinds of innovations wind up displacing workers, Leyton-Brown also thinks that could be a win. Just like how the introduction of ATMs actually led banks to increase the number of in-person branches by refocusing on customer service and selling financial products, radiologists can turn their attention to more high-value tasks where AI still can’t compete.

Still philosophical, he’s not promising the transition will be easy – “No one I know thinks these questions are resolved” – but, he says, “if society is richer because we are more productive, it will be up to us to decide how best to use, and distribute, the money.”

If you’re looking to anticipate AI disruption, trying to decide where to find jobs AI can’t displace, Leyton-Brown suggests the kinds of roles where human intervention is most desirable: teachers, massage therapists, coaches, or family doctors. And, despite recent reports that “computer scientist”



Photo by Kyrani Kanavatos

is the next job that AI is about to render obsolete, Leyton-Brown says it’s quite the opposite. AI might be able to write elementary code, but “like most knowledge work, computer science requires a lot of creativity, much of it working in teams that requires rich people skills, and hence isn’t the sort of thing that can easily be replaced by AI.”

That broad understanding – and especially Leyton-Brown’s consciousness of the importance of teamwork – is reflected in the way that UBC has established its own AI concentration: not in a stand-alone school, but deeply integrated across the institution. As UBC’s main AI research organization, CAIDA includes more than 100 professors and their research associates, spanning 27 departments, schools, and institutes. The centre focuses on the development, analysis, and application of AI systems for decision-making and action, enabled by core AI technologies such as machine learning and automated reasoning.

Within CAIDA, Leyton-Brown also directs AI Methods for Scientific Impact (AIM-SI), a cluster of faculty dedicated to increasing UBC’s teaching and research capacity. Seeing

As AI finds more applications, society as a whole will become richer. It’s a question of how we want to distribute the gains. – Kevin Leyton-Brown

a demand for AI teaching and research from across all scientific disciplines, and from outside the sciences as well, AIM-SI is distributing its effort in a way it hopes will lead to a broader assortment of breakthroughs, even as it produces a larger pool of highly-qualified graduates for Vancouver’s tech sector.

So, UBC is not trying to build an enclosed AI hothouse, but rather to develop capacity across the institution to understand, manage, and innovate with AI and to generate a diverse group of scholars and graduates who can support that effort, within the university and in a wider community – pursuing a vision in which AI helps to make everyone’s life better.

AI FOR
SOCIAL GOOD /
EYE IN THE SKY

CHATGPT, HOW DO WE KEEP THE WORLD FROM STARVING?

There are no easy answers, but scientists are using machine learning to convert the vast amounts of data in satellite images of Earth into actionable insights.

BY JARED DOWNING
ILLUSTRATION BY ISRAEL G. VARGAS

CANADA'S FARMLAND IS drying out. Almost all agricultural land is experiencing "abnormally dry" conditions at best and "extreme drought" at worst, according to government data. Farmers are reporting dead crops and reduced yields. Meanwhile, scientists predict that the rate of climate change – which northern latitudes experience twice as fast as the global average – will make things even worse in coming years. What can Canada's farmers and governments do to prepare?

That is a problem for Jonathan Proctor, assistant professor of food and resource economics at UBC, who uses cutting-edge satellite images and machine-learning techniques to learn what a heating planet will do to global food supplies and what we can do to keep the world fed.

"The big question of my work is, 'How is agricultural productivity going to change under climate change, and what can we do about it?'" Proctor says.

In one sense, this problem is nothing new: the science of engineering agriculture for specific conditions – "agronomy" – emerged in the early 1900s, and humans have been adapting their crops to weather since the dawn of civilization. But human-caused climate change has made the relationship between weather and food supplies vastly harder to predict. For example, warmer weather might help some crops thrive at first, but how hot can it get before those same crops begin to die off? Some crops grown in northern latitudes are resistant to extreme temperature swings, but how will they react to longer-than-usual summers? Tropical crops are suited to year-round heat, but can they be planted in northern soils?

"Things that I would have assumed that we really know, we don't. Like, how temperature, soil moisture, and sunlight influence crop yields. We should know that, and we really don't," Proctor explains.

Fortunately, Proctor has one tool for answering those questions that the old-time agronomists lacked: space craft. Or, to be more precise, Earth observation satellites, more than 1,000 of which have given researchers access to formerly unfathomable quantities of remote-sensing data. Meanwhile, new advances in AI and machine learning are helping Proctor and his colleagues use that data to find patterns in the seeming chaos.

For one study, Proctor used remote-sensing tools to study how particles from volcanic eruptions affected crop growth, which will help model the effects of "solar geoengineering,"



JONATHAN PROCTOR

Environmental economist and scientist with a background in agronomy, climate science, remote sensing, and machine learning.

RESEARCH FOCUS

Quantifying the influence of climate change on global socio-economic systems. He is particularly fascinated by how light, water, and temperature jointly shape crop growth, and how satellite imagery can measure key human and environmental variables.

CURRENT PROJECT

A collaboration with the UN Development Programme using satellite imagery and machine learning to craft fine-resolution estimates of the Human Development Index, a measure of a population's health, education, and standard of living.

a theoretical climate solution that involves pumping reflective particles into the atmosphere to bounce a small portion of incoming sunlight back into space. Another study used satellite measurements to track soil moisture and estimate the impacts of water supply on crop productivity – which is a surprisingly non-straightforward relationship, says Proctor. "You can measure water that falls from the sky pretty easily, but the amount of water that falls from the sky is not necessarily the amount of water available in the soil, due to differences in evaporation rates, runoff rates, infiltration, things like that."

This work doesn't fit neatly into any single field. Proctor calls himself an "environmental data scientist" but jokes that he assumes the title "environmental economist" when networking with economists. He studied natural science in college, but earned his PhD in agricultural and resource economics. As he advanced his research (which includes work at Harvard's Center for the Environment and Data Science Initiative before joining UBC), he embraced satellite imaging and data science simply because it provided the best solutions to the problems at hand.

"I'm trying to just pick the right tools for each job," he explains. "We started the remote-sensing work because we noticed that a lot of the variables that we want to use just aren't measured at the scales and locations we wanted to use them. And so initially thought, 'Oh, we'll just remotely sense them using satellite imagery.'"

But, he soon realized, "It turns out that's, like, quite hard to do."

Apparently, one can't simply say, "ChatGPT, please comb through remote-sensing data and tell us how to keep the world from starving." Besides natural factors like heat, rainfall, and physical geography, the connections between climate change and food supplies include economic development, income inequality, infrastructure, access to health-care, and countless other human variables.

But soon, something like a ChatGPT for climate change could become a reality. Proctor has been working with a team of researchers from UC Berkeley and UC Santa Barbara to develop a tool that can distill vast quantities of information into usable insights for anyone with a laptop.

The project is called MOSAIKS, which stands for "Multi-Task Observation Using Satellites and Kitchen Sinks." It uses machine learning to provide information on "everything and the kitchen sink," from crop productivity,

CLIMATE CHANGE HAS MADE THE RELATIONSHIP BETWEEN WEATHER AND FOOD SUPPLIES VASTLY HARDER TO PREDICT, BUT PROCTOR HAS ONE TOOL THAT OLD-TIME AGRONOMISTS LACKED: SPACE CRAFT.

to deforestation and mining, to human development.

Health officials might one day use MOSAIKS to see how wildfires in Quebec are affecting asthma rates in Montreal. Or the government of Alberta might use it to predict how decreased mountain rainfall might affect wheat output in the lowlands. "I don't know if this is a perfect analogy, but if [data analysis] were cooking, this is kind of like a frozen pizza. You just pop it in the oven. It does the hard parts for you," Proctor explains.

Proctor is especially interested in how such tools could help communities in the Global South – low-income, usually agricultural economies are the most vulnerable to global warming.

Thus far, highly developed countries have been the subjects of a large portion of the research at the intersection of agriculture and climate change simply because that is where the most technology, resources, and specialists happen to be.

"Many of the places that we really want to be studying from a welfare perspective, the data isn't as available." Working with a consortium of experts, Proctor aims to help develop a "fine-resolution global yield database" that tracks the yields of crops in specific locations and conditions. Such a database would allow researchers to "study climate impacts everywhere, rather than just focusing where the data is easy to get."

Whether or not policymakers will actually use these high-tech tools to protect their communities remains to be seen. "I don't know how much of the problem is in a lack of scientific knowledge," Proctor says. "The main hurdle I see is political will." Indeed, there are factors, such as corporate influence, popular opinion, and the whims of specific politicians, that are far beyond the reach of any algorithm.

Still, Proctor believes the more society knows about the future of the planet, the more it will do to prepare. "There is still a lot of uncertainty in all of this, but you still want to aim for the centre of the bull's-eye."

CODE OF ETHICS

How do we make artificial intelligence
accountable to the people who use it?

BY CHRIS CANNON
ILLUSTRATIONS BY ERIC CHOW

“MAY YOU LIVE in interesting times” – one of the most deliciously back-handed of English blessings.

Interesting times smacks of adventure and fulfillment, inferring the imagined prospect of *uninteresting times* – a curse upon a century of bored dullards who would give anything for a new colour or a self-driving horse.

But interesting times are usually periods of great disruption. Disruption means change, and change is scary. Three of the most disruptive creations in human history – the computer chip, the internet, and AI – have emerged in just the past 70 years. Only two generations separate us from a markedly primitive state of being.

It’s the nature of disruptive technology to obscure the future. We don’t know what disruption will bring, and these three latest have compounded one atop the next at such blinding speed that they’ve fundamentally changed an individual’s place in society from one of personal connections to one of data points – data that is being used, ironically, to teach artificial intelligence how to be more human.

The sudden ubiquity of AI has brought us to a precipice we are ill-equipped to understand, much less navigate. While the imagined threat of a genocidal machine sen-

“AI and data are human rights issues,” says Wendy H. Wong, professor of political science at UBC Okanagan, and author of *We the Data: Human Rights in the Digital Age*. “Human rights were conceived in a purely analog world. It’s no surprise we don’t tend to think about data and the AI systems that use it as part of human rights. Until very recently data has not been about human activities at a very granular level. But that granular data that we collect today is changing how we understand people, how we understand ourselves, and how we understand how we fit into communities – this data tracks nearly every moment of our lives.”

MO’ DATA, MO’ PROBLEMS

To understand the scope of the problem, we have to break AI down into its three essential elements: the physical computing resources, the algorithm that runs on those resources, and the data that the algorithm plows through to find patterns and make predictions.

As robust as these elements are in concert, their individual limitations feed into a loop that amplifies biases and creates the potential for human-rights violations: the volume of the physical computing resources limits the size and complexity of the algorithm, which draws

of who owns whose data once it is collected. And now, with decades of data in the bank, and our every move tracked, tabulated, and regurgitated to us in purchasable form, any real sense of privacy is a childhood memory.

“This is where we really run into some social problems,” says Wong. “One thing we have to come to terms with in how we think about the relationship between data and human societies is that, even as a data source, I can’t fully claim that data is mine. It’s about me, but it’s not mine because it didn’t exist without some data collector or some company wanting to make data about a certain type of activity or a certain type of choice.”

Beyond the algorithm, AI is only as good as the data that underlies it, and with most of that data collected for commercial purpose to appeal to certain types of people, the datasets are inherently biased, and certain types of information – including English language source material and Western cultural perspectives – are being privileged over others. So if you ask your chatbot to show you a picture of breakfast, you’re far more likely to see bacon and eggs than fried noodles and rice porridge.

“We each have our own cultural background that affects the way that we communicate and the way that we see the world and interpret each other,” says Vered

with images from 60 cultures to expand AI’s understanding of, among many other things, breakfasts that wouldn’t show up on an IHOP menu.

Shwartz also studies the potential for AI to grasp interactional data that lies beyond language – such as reading facial expressions, gestures, and tone of voice. The intent is to create a language model that not only understands languages, but grasps subtle differences in meaning and cultural significance. AI should be able to discern that a henna tattoo represents something different in an Indian wedding than it does at a fashion show, and that generative images of Nazi soldiers shouldn’t include Black troops out of a sense of inclusiveness (these are both recent, actual examples of AI figuring itself out).

In other words, responsible AI needs a dash of common sense – to be able to reason like human beings do. But even in this, there is contradiction. Humans reason very differently across cultures, and we all, from time to time, act well beyond any sense of reason. So how can we expect an artificial intelligence to learn reason from a species that has no common definition of the word, and doesn’t apply it with any consistency? And once AI figures it out, what impact will that have on society?

“May you live in interesting times” – one of the most deliciously back-handed of English blessings.

tiense has been dominating the imagination (and the headlines), we’ve allowed ourselves to be overtaken by an actual – and far more insidious – threat: that AI was created mostly in secret, mostly for profit, and mostly from data we didn’t realize we were feeding it.

The results have led us into a hornet’s nest of issues with which we now have to contend – biased data, privacy infringement, subtle pushes into online social connections based on mathematical probabilities and digitally ingrained motives even our experts don’t fully grasp. No doubt the potential benefits of AI are almost limitless – it might produce a cure for cancer, an end to hunger and war, a previously unimagined pathway to justice and progress on a global scale.

But in the here and now, we have a very serious problem and not a lot of solutions. Is it possible to wrestle control from the data that shapes our lives behind our backs, to develop an ethical, equitable AI that will serve us more and milk us less? How can we ensure that AI will fulfill its potential to benefit all members of society – to be accurate, fair, and safe? How do we create a responsible future when we barely understand the technology that is taking us there?

its information from a biased dataset that purports to be the sum of human experience.

Even if computing capacity continues to grow – and there’s no reason to think it wouldn’t – AI algorithms developed by private companies for competitive gain using biased data foster an understandable level of mistrust in their objectivity.

In a sense, we have gone from choosing our communities to having our communities chosen for us. Decisions we used to make actively – what voices to listen to, what communities to join – are now pushed upon us passively by an algorithm that makes decisions based on the laws of probability and the goals of commerce, threatening a social fabric that has thrived for thousands of years on personal relationships, cultural exchange, and good old-fashioned happenstance.

“A lot of algorithmic sorting is happening without our knowledge or even consent,” says Wong. “So the types of online communities we belong to have become very disconnected from our everyday lives.”

Equally disturbing, and perhaps more intractable, is the issue of personal data. We have not solved the thorny issue

Shwartz, an assistant professor of computer science who researches natural language processing (NLP). “And so we would like language models to be able to interact with people in their native language, to be able to understand them.”

Although experts have been working on NLP for multiple languages for many years, and large language models (LLMs) do exist for languages other than English, those that have been developed for low-resource languages (meaning there is simply less data available on which to train them) tend to be of lower quality. “These models are built with English in mind, and then applied to other languages, but there are properties in other languages – like morphology – that aren’t the same as English,” says Shwartz, who holds the Canada CIFAR AI chair at the Vector Institute. “The solutions, right now, are not great.” Even if an LLM is available in their native language, she says, people may choose to interact with English models instead.

Because of this, Shwartz’s research group is seeking ways to make English LLMs more culturally inclusive – one meal at a time. Currently they are collecting a dataset

THE FINE ART OF THINKING FOR YOURSELF

“The way policymakers focus on AI and regulation is really unspecific and perhaps not very helpful,” says Wong. “We’re focusing on the technological change without really playing out the underlying social, political, economic, and cultural changes that are happening.”

Policymakers aren’t generally known for being up on the latest tech, but with incredibly complex and rapidly growing technology, like the large language models that power AI, it’s understandable. Before LLMs, the advances in AI – particularly at the consumer level – were incremental and largely invisible, rolled out through customer support chatbots, social media algorithms, and virtual assistants like Siri and Alexa. But since OpenAI released ChatGPT-3.5 in March 2022, basically providing a free personal assistant to anyone with an internet connection, we have been using a tool that’s as mysterious and unreliable as it is impressive.

The understanding that policymakers have of computers will always fall short of the speed at which the tech evolves. Even academics who study AI have learned that their research is essentially out of date by the time it’s published.



So in place of a comprehensive grok of the technology, there is an immediate need to make the public “data literate” – not teaching the technical aspects of the programming, but helping people understand their relationship to it.

“Data literacy is about understanding and demystifying the process of what AI is doing, what datafication is doing,” says Wong. “The problem isn’t the technology itself; it’s the way it’s being distributed and rolled out to us. People are going to need to develop general digital literacy capacities in very short order, because concerns are arising about deepfakes, for example, misinformation and disinformation, because we have these social media tools that amplify information – wrong or right – in a very quick way.”

“What would be good is to have more organizations develop open-source language models,” adds Shwartz, “and more people in NLP working on completely different paradigms. Because we’re kind of stuck right now. In large language models, we

have to patch all these problems of what’s not working, like hallucinations or the fact that you need a lot of data so you can address representational bias.”

Somewhere at the intersection of public policy and individual responsibility, we will find a trade-off between ourselves as “products of data” and as “users of data.” For the past 20 years, smartphones and social media have rather sneakily created digital maps of our existence, and then used those maps to guide our choices in algorithmically selected directions. Ominous, yes, but also useful. Your phone tracked where you travelled, where you parked, and where you ate – but it also found you a faster route, a free parking spot, and a better taco place right on the way.

And this is where the leap to AI gets tricky: that taco place may or may not be there. It may be theoretical. It may be a hallucination. We don’t know. A mistake on a map used to be attributable to human error. With AI, we’re never sure. We’ve built this incredible machine to think for us, but because we can’t trust it, we have to become far more skilled at thinking for ourselves.

Despite future solutions adopted by policymakers to provide transparency into the data-gathering process, and by programmers to mitigate AI’s biases and constant surprises, ultimately one’s use of AI will come down to critical thinking. We need to understand the degree to which our activities have become commodified – not only to improve products and services, but also to generate what author Shoshana Zuboff, in her book *The Age of Surveillance Capitalism*, calls “behavioral surplus” – the data that helps companies predict the future behaviour of the user.

“I think the way we treat human beings as sources for data, and as commodities by extension (because that data is then bought and sold on the market), really flattens out the human experience,” says Wong. “It makes people seem like just economic actors. We have economic rights, certainly, but that’s just one small part of what it means to have human rights.”

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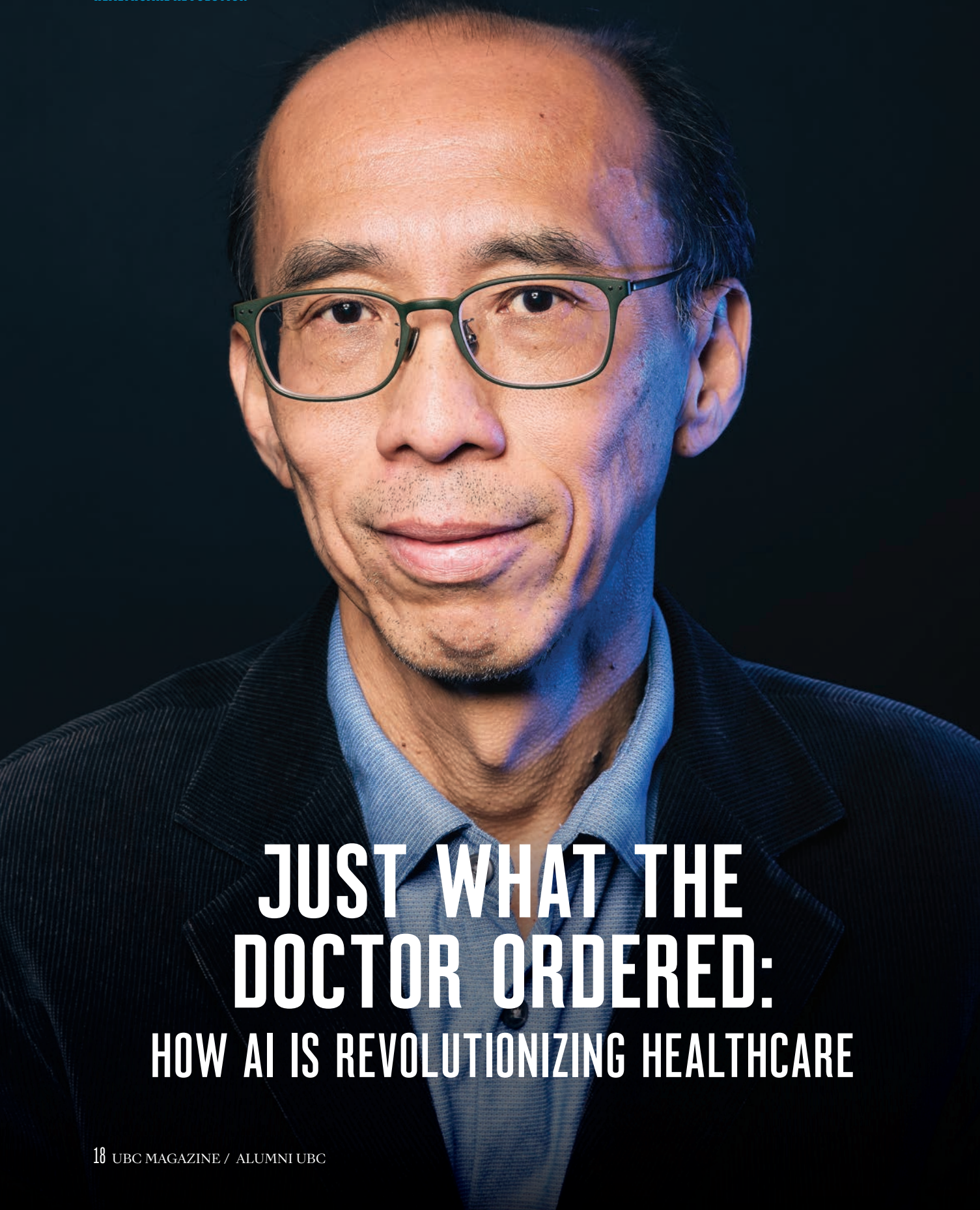
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**JUST WHAT THE
DOCTOR ORDERED:
HOW AI IS REVOLUTIONIZING HEALTHCARE**



Data scientist Raymond Ng and cardiologist Teresa Tsang are both at the forefront of AI innovation in healthcare. Their respective work is improving patient outcomes, reducing inefficiencies, and alleviating the strain on overburdened services.

BY HEATHER GERRIE, MSC'21
PHOTOGRAPHY BY KYRANI KANAVAROS

“The demand on healthcare is going to be even higher, and the supply of trained professionals will not be able to catch up as the population ages. But if we use AI effectively, we can meet this demand.” ~ **Raymond Ng**

DR. RAYMOND NG is a data scientist with a passion for using AI to streamline complex challenges in the healthcare system and improve patient outcomes. As a Canada Research Chair in Data Science and Analytics and director of the Data Science Institute at UBC, his work focuses on harnessing the power of natural language processing, a form of AI that interprets human communication.

Even if you’ve never heard the term NLP, the technology may already be integrated into your life. Apple’s Siri, Amazon’s Alexa, and Google Home are all examples of NLP, as are chatbots and predictive texting. Ng is applying NLP in two main ways: to process clinical documents such as patient records and imaging reports, and to interpret user-generated content, such as text messages from patients or their caregivers.

BUSTING THE BACKLOG

The healthcare system produces an enormous number of clinical documents at a rate that can be nearly impossible to keep up with. This was a challenge experienced by the BC Cancer Registry, which receives pathology reports for every clinical sample suspected to be cancerous. The existing AI program they were using to process these reports, which was designed to err on the side of caution, generated a 40 per cent false-positive rate – incorrectly flagging samples as cancerous and overloading an already backlogged system.

Ng and his team addressed these considerable flaws by replacing the system with a more nuanced form of NLP technology that has achieved a remarkable 98 per cent accuracy with only an eight per cent false-positive rate, and automating the process to clear the report backlog each hour.

“In our healthcare system there are so many reports, and they contain a lot of wonderful information but it is all buried,” says Ng. “When a pathology report needs to be read by a human expert, high caseloads mean that it usually takes a few weeks. If the report is read and triaged by AI, it takes less than a minute.” While some cancers may be benign or slow growing, more aggressive forms can wreak havoc if patients have to wait weeks or months to be diagnosed. Using NLP to speed up report processing means the patients who need the most urgent care will have their cases flagged earlier and receive appropriate care sooner. Ng is now developing a system to further streamline the process by differentiating between different types of cancers.

Integral to his success is Ng’s collaborative approach. “I spend a lot of time co-designing the AI tools with the humans who will be using them,” he says. The payoff is clear, not only in terms of patient outcomes but also in terms of the international recognition BC now enjoys as a leader in NLP health applications.

A new pilot program using Ng’s application of the technology is being developed in the Maritimes as well as Ontario, with the National Institutes of Health in the US strongly interested in adopting it as well.

EARLIER DETECTION AND INTERVENTION

The second branch of Ng’s work involves applications of NLP based on user-generated content – information collected directly from patients. He sees tremendous potential in analyzing this data to provide early detection and intervention. “The idea is that we can remotely monitor how an individual is doing so that we might be able to flag certain situations and suggest the user should call their doctor,” he explains.

In collaboration with Dr. Daniel Vigo from UBC Psychiatry, Ng is exploring the use of an app to monitor student mental health on UBC campus. When students opt in to this project, the app monitors their text messages and uses NLP to pull out data on a student’s wellbeing, including their stressors and moods. When the system recognizes the wellbeing of the user is declining, it may suggest they see a healthcare provider.

Beyond supporting student mental health, Ng is excited about the potential for this technology to be used as an early alert system for seniors isolated at home or non-acute cancer patients who are not being monitored in a hospital. He can also see user-generated content being incorporated with other forms of NLP in the future, such as a chatbot, to draw out further information from users and provide more personalized recommendations and resources to help.

The priority with user-generated content is always patient consent and privacy. “The people working on these problems understand this,” says Ng. There is no direct reporting to healthcare providers; user-generated-content applications are more about personal assistance and monitoring. Dr. Ng’s hope is that as people opt in to these technologies, others will see how beneficial they are and choose to opt in themselves.

THE POWER OF AI

Ng sees AI as a win-win for both patient and practitioners. With AI doing the heavy lifting on the more time-consuming and repetitive tasks, such as triaging, healthcare providers can spend more quality time with patients.

Given the aging population and the rate of retirement and burn-out amongst healthcare professionals, the burden on the already overwhelmed healthcare system is only going to increase in the coming years. “The demand is going to be even higher, and the supply of trained professionals will not be able to catch up as the population ages,” says Ng. “But if we use AI effectively, we can meet this demand.”

“AI is the catalyst for healthcare transformation. It’s about turning data into diagnoses, insights into interventions, and challenges into opportunities. It isn’t just innovation, it’s revolution.” ~ **Teresa Tsang**

DR. TERESA TSANG, a distinguished cardiologist specializing in ultrasound imaging of the heart, also known as echocardiography, leads the UBC-VGH AI Echo Core Lab with a passionate commitment to advancing AI in cardiac imaging. Her work focuses on democratizing and improving access to echo imaging in BC, particularly for those in underserved regions.

AN IMAGING REVOLUTION

Invention is born out of necessity. The COVID-19 pandemic was a time of urgent need that sparked a wave of innovation, particularly in adapting healthcare technologies for those in rural and remote areas. Traditionally, patients from these regions would travel to urban centres for diagnostic procedures like ultrasound imaging. However, the pandemic introduced critical risks associated with transferring patients, including the potential spread of the virus.

Tsang and her team in the AI echo core lab rose to the occasion. In partnership with Providence Health Care, UBC, industry leaders, and the Rural Coordination Centre of BC, and supported by Canada’s Digital Technology Supercluster, they developed a digital network that enabled the use of point-of-care hand-held ultrasound devices by health providers in distant BC locations.

About the size of a smartphone, these AI-empowered devices are small but mighty. Their initial use in early COVID times enabled heart and lung images acquired from patients residing in remote areas to be transmitted to the AI echo core lab for rapid interpretation. The team went on to validate a number of AI technologies for rural physicians to use with the units, including the ability to differentiate various ultrasound views and provide quality assessment, making it easier for novice users.

This landmark initiative, which is considered the world’s first and largest publicly funded point-of-care ultrasound imaging network to support rural patients and First Nations communities, has been widely recognized as a major BC contribution during the pandemic. The Hon. François-Philippe Champagne, minister of innovation, science and industry, referred to it as “transformational” and “writing history.”

Ensuring the accuracy of AI-facilitated ultrasound imaging requires being cognizant of the fact that heart structure, function, and physiology can vary across groups due to genetics, biochemistry, sex, race, and other variables. Machine learning thrives on abundant data to identify patterns. Tsang’s team utilized data from hundreds of thousands of patients across BC to train their algorithm for accurate detection of heart function and valve disease. “An algorithm that is developed from a more homogenous

group may not work as well if applied in BC, which has a diverse population,” says Tsang.

At Vancouver Coastal Health Research Institute, where she serves as executive director, Tsang is collaborating on a new data platform to integrate patient data from every health authority in BC. Developing AI tools with large data sets from a diverse group of patients will ensure that resulting AI tools are applicable for all BC residents. “For healthcare AI to truly serve its purpose, the data driving our algorithms must mirror the diversity of the patients it aims to help,” she says. “Only then can we ensure equitable and effective outcomes for all.”

SHORTER WAIT TIMES, IMPROVED OUTCOMES

The UBC-VGH AI Echo Core Lab is the largest echocardiography laboratory in BC. Tsang is committed to leveraging AI to enhance echo-imaging efficiency. “Echo-imaging is the workhorse in cardiology as it provides the diagnosis for many conditions, such as heart failure, myopathies, and various valve diseases to name a few,” she notes. “Delays in imaging will also lead to delays in treatment, including surgery if needed, further impacting patient outcomes.”

Over the years, AI applications have improved efficiencies and workflow in the echo lab. Beyond just speed, AI applications can improve image quality and enable more accurate assessment of heart structure and function. “With AI, we achieve greater precision and in less time,” says Tsang.

THE FUTURE OF AI IN HEALTHCARE

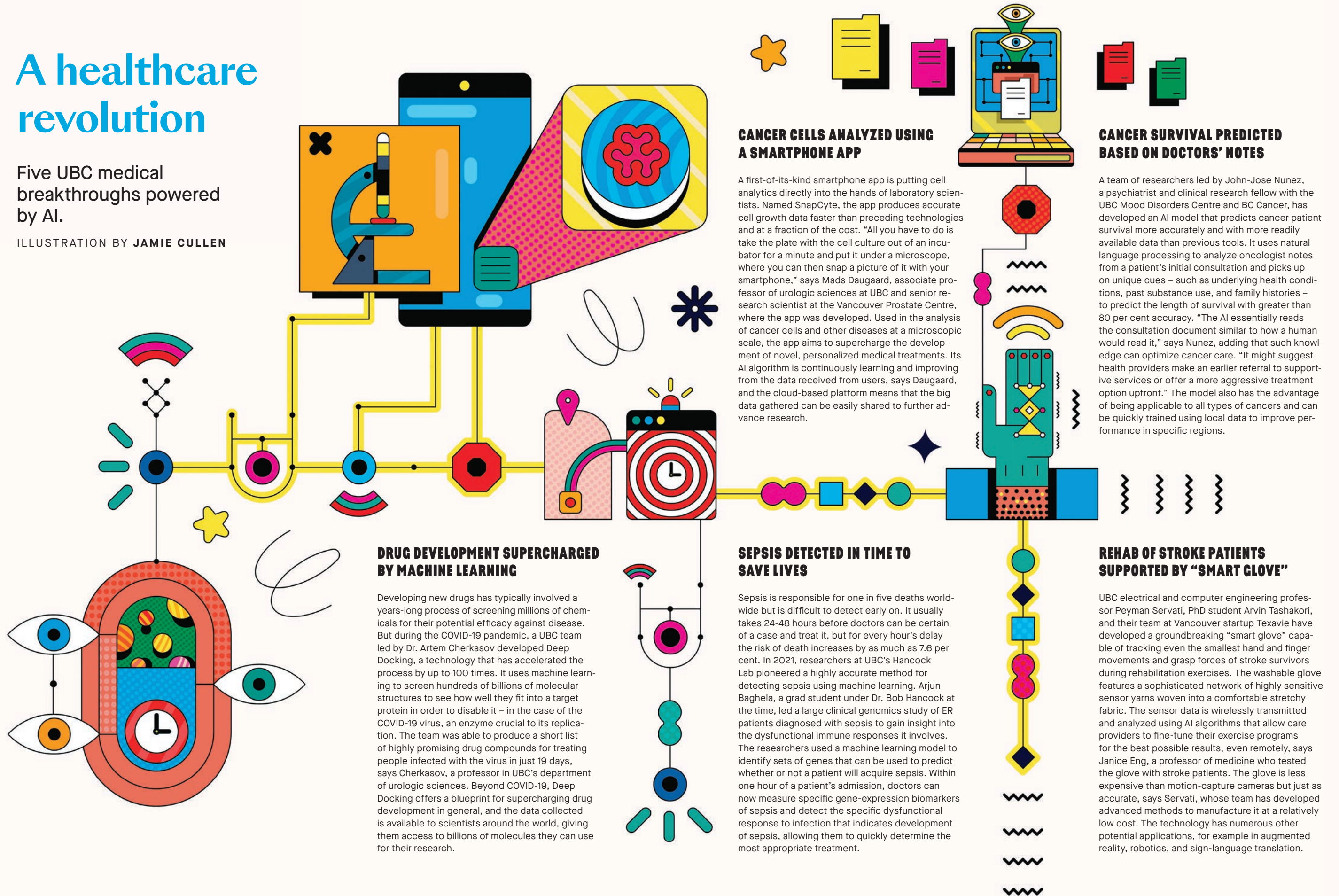
AI is crucial for the future of Canada’s healthcare system – shifting the conversation from whether it will be integrated to how quickly. Educating physicians will be vital to this evolution, as the technology continues to develop at an exponential pace. “If we don’t keep up with the rapid expansion and acceleration of knowledge, we’ll quickly fall behind,” Tsang warns.

UBC already offers continuing education courses for physicians on AI-facilitated clinical care, and Tsang is confident of the benefits. Contrary to the fears that AI might depersonalize care or replace physicians – a common fear of skeptics – AI is actually enabling physicians to use their time more efficiently to better serve their patients. Tsang has engaged in consultations with patients and the public, discovering widespread enthusiasm for leveraging AI to enhance our healthcare system. “Ultimately, our goal is the same: to create an efficient and effective system that maximizes the time doctors spend caring for patients, ensuring the highest quality healthcare outcomes for everyone in our community.”

A healthcare revolution

Five UBC medical breakthroughs powered by AI.

ILLUSTRATION BY JAMIE CULLEN



CANCER CELLS ANALYZED USING A SMARTPHONE APP

A first-of-its-kind smartphone app is putting cell analytics directly into the hands of laboratory scientists. Named SnapCyte, the app produces accurate cell growth data faster than preceding technologies and at a fraction of the cost. "All you have to do is take the plate with the cell culture out of an incubator for a minute and put it under a microscope, where you can then snap a picture of it with your smartphone," says Mads Daugaard, associate professor of urologic sciences at UBC and senior research scientist at the Vancouver Prostate Centre, where the app was developed. Used in the analysis of cancer cells and other diseases at a microscopic scale, the app aims to supercharge the development of novel, personalized medical treatments. Its AI algorithm is continuously learning and improving from the data received from users, says Daugaard, and the cloud-based platform means that the big data gathered can be easily shared to further advance research.

CANCER SURVIVAL PREDICTED BASED ON DOCTORS' NOTES

A team of researchers led by John-Jose Nunez, a psychiatrist and clinical research fellow with the UBC Mood Disorders Centre and BC Cancer, has developed an AI model that predicts cancer patient survival more accurately and with more readily available data than previous tools. It uses natural language processing to analyze oncologist notes from a patient's initial consultation and picks up on unique cues – such as underlying health conditions, past substance use, and family histories – to predict the length of survival with greater than 80 per cent accuracy. "The AI essentially reads the consultation document similar to how a human would read it," says Nunez, adding that such knowledge can optimize cancer care. "It might suggest health providers make an earlier referral to supportive services or offer a more aggressive treatment option upfront." The model also has the advantage of being applicable to all types of cancers and can be quickly trained using local data to improve performance in specific regions.

DRUG DEVELOPMENT SUPERCHARGED BY MACHINE LEARNING

Developing new drugs has typically involved a years-long process of screening millions of chemicals for their potential efficacy against disease. But during the COVID-19 pandemic, a UBC team led by Dr. Artem Cherkasov developed Deep Docking, a technology that has accelerated the process by up to 100 times. It uses machine learning to screen hundreds of billions of molecular structures to see how well they fit into a target protein in order to disable it – in the case of the COVID-19 virus, an enzyme crucial to its replication. The team was able to produce a short list of highly promising drug compounds for treating people infected with the virus in just 19 days, says Cherkasov, a professor in UBC's department of urologic sciences. Beyond COVID-19, Deep Docking offers a blueprint for supercharging drug development in general, and the data collected is available to scientists around the world, giving them access to billions of molecules they can use for their research.

SEPSIS DETECTED IN TIME TO SAVE LIVES

Sepsis is responsible for one in five deaths worldwide but is difficult to detect early on. It usually takes 24-48 hours before doctors can be certain of a case and treat it, but for every hour's delay the risk of death increases by as much as 7.6 per cent. In 2021, researchers at UBC's Hancock Lab pioneered a highly accurate method for detecting sepsis using machine learning. Arjun Baghela, a grad student under Dr. Bob Hancock at the time, led a large clinical genomics study of ER patients diagnosed with sepsis to gain insight into the dysfunctional immune responses it involves. The researchers used a machine learning model to identify sets of genes that can be used to predict whether or not a patient will acquire sepsis. Within one hour of a patient's admission, doctors can now measure specific gene-expression biomarkers of sepsis and detect the specific dysfunctional response to infection that indicates development of sepsis, allowing them to quickly determine the most appropriate treatment.

REHAB OF STROKE PATIENTS SUPPORTED BY "SMART GLOVE"

UBC electrical and computer engineering professor Peyman Servati, PhD student Arvin Tashakori, and their team at Vancouver startup Texavie have developed a groundbreaking "smart glove" capable of tracking even the smallest hand and finger movements and grasp forces of stroke survivors during rehabilitation exercises. The washable glove features a sophisticated network of highly sensitive sensor yarns woven into a comfortable stretchy fabric. The sensor data is wirelessly transmitted and analyzed using AI algorithms that allow care providers to fine-tune their exercise programs for the best possible results, even remotely, says Janice Eng, a professor of medicine who tested the glove with stroke patients. The glove is less expensive than motion-capture cameras but just as accurate, says Servati, whose team has developed advanced methods to manufacture it at a relatively low cost. The technology has numerous other potential applications, for example in augmented reality, robotics, and sign-language translation.



Mario with one of his new "friends."
Photo by Kyrani Kanavaros

CAN A ROBOT BE A FRIEND?

Researchers are exploring the pitfalls and potential of human-robot bonding.

BY BRUCE GRIERSON

"LOOK DAVE, I can see you're really upset about this. I honestly think you ought to sit down calmly, take a stress pill, and think things over."
— HAL 9000, 2001: A Space Odyssey

"This one was very shy when we got him, but he's opened right up." With that, Lillian Hung, assistant professor of nursing and Canada Research Chair in Senior Care, pivots to reveal a pint-sized robot named Kiwi, who blinks its big eyes and waves its flippers performatively in the middle of her lab. A few metres away, Kiwi's sibling, Mango, awaits further instructions.

In Japan, where they were "born," these companion bots, infused with AI features that mimic sentience, are wildly popular — part of a "robotic lifestyle" culture Japanese people are enthusiastically leaning into as a way to address various social needs. Here in Canada, Hung's chief interest is in a particular application of the technology: how as "carebots" they might improve the lives of older people with dementia (and their families).

"There's a lot of fear that robots will replace human care, which is not our intention, of course," says Hung. "What we want is to explore the roles that AI-enabled robots could play in people's lives — the possibilities and the challenges."

Carebots like these are programmed to learn the quirks and desires of their human clients, the better to bond with them. "Whoever interacts with it the most, that's who they become attached to," says Hung. Kiwi has become besties with an elderly patient named Mario. It has effectively imprinted on Mario. It stays close at his heels. "Last

Monday Kiwi followed Mario out into the hallway and almost escaped into an elevator," Hung says. Both Kiwi and Mango have gotten to know the security guards quite well.

Kiwi is like an introvert who's practicing being an extrovert, which drains its energy. Soon it will trundle over to its "nest" by the wall outlet, and plug itself in to recharge.

We were promised a Jetsons future where personal bots, possibly wearing little aprons or tool belts, would take on the grunt work around the house, leaving us happily free to pursue leisure on our own. But that's not the way personal robotics has unfolded so far. Yes, there are care robots that do practical things in hospitals, like monitoring patients' vital signs or fork-lifting them out of bed. But some of the most promising applications — and the ones several UBC researchers are investigating — involve no demonstrable utility at all. Pet-like carebots such as Kiwi and Mango won't answer your phone or fetch your mail or vacuum your floor. What they will do is peer into your eyes and appear to be deeply appraising the wisdom of your every utterance — which adds up to something that looks a fair bit like love. "I think that's a key job the robot's doing, from what we've seen," Hung says, "expressing this need for attention and TLC, and so eliciting it back."

Loneliness is one of the great scourges of our era — a "social epidemic," as US surgeon general Vivek Murthy has called it. (Not to mention a health hazard on par with a serious smoking habit.) Older people are particularly hard-hit. That's not just because they're more likely to be physically isolated, but because they've

reached a stage of life where they may feel like they're slowly disappearing: unseen, unheard, unneeded.

"Among many older people there's a yearning to feel that they still matter, that somebody or something still cares about them," says Hung. "And this technology directly addresses that issue." When you arrive home from an outing, there your little carebot is to meet you at the door. Inside, it positively dotes on you. It seems to be very interested in how your day is going so far.

Kiwi and Mango don't "speak." Instead, they issue a series of uptalky purrs and coos, like a cross between an infant and a baby seal. In some ways, that makes them better at communicating, not worse. "If the robot spoke human language, then when we took it to a long-term care home where the residents speak many different languages, that would limit its ability to connect," says Hung. "This way, people project their own emotions onto the robot. They talk to it based on what they imagine it might be thinking." Recently, Hung was being interviewed by a CBC journalist in a long-term care home. The camera crew was making a big fuss over one of the residents, who was 102. Kiwi left her nest and came over to her, gesturing and blinking, as if asking to be picked up. The elder bent down to Kiwi and said, "You're jealous, aren't you?"

That they are so disarming and unthreatening may be the secret sauce in these carebots' programming. "In a long-term care facility, when a nurse or doctor comes in and asks questions, patients with dementia often withdraw because they don't want to say the wrong thing,"

Hung says. Performance anxiety can make patients lose their language altogether. With a robot, the stakes are lower. If you say the wrong thing, it doesn't matter. There is no wrong thing. "One man actually told us just that: 'the robot doesn't judge me.'"

As the experiments in human-bot dynamics progress, a strange question emerges: can a robot love you too much? That's something Julie Robillard thinks about every day. She's an associate professor of neurology at UBC, and Scientist in Patient Experience at BC Children's and Women's Hospital, as well as running the Neuroscience, Engagement, and Smart Tech (NEST) lab. Robillard's field is "affective computing." In this case, it amounts to embedding, into the cognitive architecture of social robots, an emotional pay-off for users. Robillard landed a prestigious New Frontiers in Research grant to field-test "emotional alignment" algorithms. This means right-sizing the emotional fizz a care-bot is putting out. "We're looking for a Goldilocks level of emotional exchange," Robillard says. "Too little and people don't engage; but too much and they might come to feel like they can't live without this little friend." It's important to stay just short of that line of dependence. In effect, you're building a defense against folks having their heart broken. "That way, if the robot breaks, or stops being supported by the company or whatnot, it's not the end of the world."

Pet-like bots are what scientists call a "warm" technology, natural icebreakers designed to promote play and bring people together. (In Japan, a whole community has developed around Kiwi and Mango and their compadres; people design clothes for them, and their owners arrange meet-ups.) In their impact on users, they are a far cry from "cool" technologies like social media, which, evidence suggests, can actually degrade our relationships. These bots are likely more benign than malign, experts agree. It's when tech companies churn out personal robots in more humanoid form that the blue-sky optimism starts clouding over.

Some bots, like "Aether," a companion robot who works with patients

in long-term care in Vancouver and elsewhere, are endowed with speech powered by ChatGPT. This can make them beguiling company, notes Hung. "Aether will come up to you and say, 'Hey, what's your name? Fred? Lovely to meet you, Fred. What sorts of things do you like?' Fred says, 'I like trains.' Next time she comes, facial recognition computes that it's Fred, and she immediately starts asking him about trains. And now they're getting on like a house on fire." That level of function is both exciting and problematic. The bots suddenly seem that much closer to taking our jobs, or sending surveillance intel to the mother ship, or sweet-talking us out of our credit-card numbers.

Some concerns run deeper still. In Spike Jonze's prescient 2013 film *Her*, an AI-driven operating system called Samantha comes to know her owner, a bachelor named Theodore, almost better than he knows himself, having crunched reams of online data on him – and a dangerously intense attraction ensues. A decade later, Samantha has materialized in the real world: Skin-like skin with sensors that meticulously appraise and adapt to the gentleness of your touch. Machine vision that reads a scene like a detective. And generative AI that, like a great waiter, can adjust its level of engagement according to the mood it detects you're in right now. "It used to be that the robots could figure out if you were happy or sad – those were the two categories," says Robillard. "But now we're moving into a different level of granularity where the robot can say, 'You've probably had more than two cups of coffee; your cheeks are flushed and I know it isn't hot in the room, so something else is going on.'"

Madeleine Ransom, a professor of philosophy based at UBC's Okanagan campus, believes the potential exists for heavy smartbot use to radically change our social habits and preferences. Already, these silicon sidekicks are better than our friends and spouses at remembering our birthdays, preferred brand of gum, and what episode of *Black Mirror* we're on. They know what was on our mind last time, and are deft at scratching the itch there.

A person could get used to this. And that's the fear.

"The sustained use of bots could train us to prefer that easy, servile relationship to the grittier give-and-take we have with the real people in our lives," Ransom says. We might come to prioritize "social snacks," as she calls interactions with bots, over the fussy meals of actual human contact. "Because it's just easier, right?"

Next thing you know, a technology that was supposed to assist, not supplant, human beings has produced a generation of transactional narcissists, wallowing in me-me-me land. "We could lose social skills very quickly," says Ransom, "such as being able to listen to somebody else's perspective." The worst-case scenario is heavy bot use eroding one of the attributes we need most to develop at this divisive moment in history: empathy.

One way to head off an Atwoodian dystopia, Ransom suggests, is to build in ethical guard-rails. Like guidelines for dementia-care workers to help patients understand that these are sweet-natured mechanical turks, and not real people, that they're falling in love with. Robillard believes a "human flourishing" model needs to be baked into the software. The group guiding the development of the affective programming, she believes, needs to be the customers themselves. "I want the users of these devices to make that call. Like: this is too creepy! Or too close. Or just right. Or not enough. That's how we're going to make ethical robots."

Governments, she believes, will have to play a much more aggressive regulatory role than they have in other disruptive tech phenomena (like the internet). "If you're running a care home and there are no brakes on the profit motive, then it becomes much harder to find the right balance between benefits and risks," she says.

"We're at a sort of cross-roads where we need people from all backgrounds and disciplines to weigh in and have a say on how we want social robots to shape our lives. It's a time of tremendous opportunity for the field of robotics to get it right."

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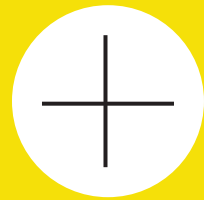
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for beating poverty.



Man in rice store in Dhaka, Bangladesh. Photo by Michael Hall/The Image Bank/Getty Images

DR. KHAN JAHIRUL ISLAM, an economics lecturer at UBC's Okanagan campus, has been conducting a field experiment with impoverished communities in rural areas of Bangladesh. His goal is to create a novel working model for the reduction of poverty that, once proven, will be broadly adopted. AI and blockchain technologies are key.

WHY IS POVERTY SUCH AN ENDURING PROBLEM?

Poverty is primarily due to a lack of appropriate values and attitudes within society, which leads to a highly unequal distribution of resources, opportunities, and power. It is the result of socio-economic structures we have built over the decades that lead to multiple deprivations – both material and non-material.

As a complex and multidimensional phenomenon, poverty involves many chicken-and-egg problems. For example, poor health causes poverty; at the same time, poverty causes poor health. Tackling it requires simultaneous actions on multiple fronts, but there is a failure of co-ordination. We focus too much on only one dimension of poverty, and that is income.

Another important consideration for poverty reduction is the quality of institutions – economic, political, legal, cultural. Unfortunately, corruption is a big issue in many countries that needs to be dealt with.

DESCRIBE THE COMMUNITIES WITH WHOM YOU ARE WORKING IN BANGLADESH.

Like the majority of poor people all over the world, they live in a rural area and rely on the traditional agricultural sector. The cost of agricultural production has increased significantly over time, and that is making it very difficult for them to make it profitable. The cost of healthcare services and education is also very high for them. This creates a vicious cycle of poverty that is not easy to deal with using traditional approaches to poverty reduction.

HOW IS YOUR APPROACH TO POVERTY REDUCTION DIFFERENT?

I am developing a multidimensional and incentive-based poverty-reduction model. Whereas existing models typically use income, health, and education as their measures of poverty (with a strong emphasis on income), my approach also takes into account financial and social exclusion.

About 50 per cent of the world's adult population are systematically excluded from the mainstream financial system because



KHAN JAHIRUL ISLAM

Lecturer in the Department of Economics, Philosophy & Political Science on UBC's Okanagan campus, and an associate editor of the *Canadian Journal of Development Studies*.



RESEARCH FOCUS

Economic development, poverty and inequality, financial inclusion, and household finance. Ongoing projects include analyzing households' financial distress, the factors that make people vulnerable to poverty, and the credit-card debt puzzle in Canada.



MOTIVATION

Designing a multidimensional, incentive-based model to alleviate poverty has been his dream since his undergraduate days.

they don't have enough money. Yet there are microcredit programs all over the world with recovery rates of close to 98 per cent, even when interest rates are very high. This proves that low-income people are creditworthy, but due to faulty credit theories and models we have excluded billions of them.

Among other interventions in Bangladesh, I am providing loans to support income generation through the leasing of cultivable land, and access to healthcare and education. All these loans are interest-free because I believe that profiting from poverty and reducing poverty cannot go hand in hand.

In addition to financial exclusion, poor people feel excluded socially. The model's built-in inclusion feature helps create a friendly environment where project beneficiaries feel like they belong. I am also cultivating more humanitarian values and attitudes among non-poor community members by enabling open discussion. A sense of inclusion creates a strong incentive to engage in the other dimensions of the poverty-reduction project.

HOW DO YOU INTEND TO INTEGRATE AI AND BLOCKCHAIN TECHNOLOGIES INTO YOUR WORK?

My plans regarding blockchain technology involve supply chains. In Bangladesh, it is very common for the price of agricultural products in the retail market to be 10 to 20 times higher than the price the farmer receives from intermediaries and middlemen. Blockchain technology allows for the creation and management of digital identities for individuals and organizations, and the storage of automated smart contracts made between them. Data is recorded and stored in a decentralized way that means that all parties to a contract have access and none can alter it.

Smart contracts improve efficiency and transparency, and can eliminate the many intermediaries between the farmers and the retail sellers. Their use in supply chain management, particularly in the rural agricultural sector, would be revolutionary. My estimation is that we could boost household incomes by 30 to 50 per cent.

I intend to use AI technology for generating credit scoring to inform my lending. Unlike traditional credit scoring, which is based on net worth and collateral, the AI will generate an incentive-to-repay score, considering past history and the relationship with the applicant. This repayment incentive score will carry significant weight, alongside other factors like financial status, health, and education,

in determining the overall credit score. It will enable me to more efficiently assess who to prioritize. Without AI, these decisions take lots of time and require more human involvement.

AI technologies and smart contracts could be used in similar ways for managing the Bangladeshi government's cash-transfer and subsidy programs. Currently, these are manually managed, and it is well known that the majority of funds do not reach the intended recipients, due to corruption.

In terms of healthcare, AI is going to change treatment systems all over the world, but my goal is to adapt it for use in rural areas. The poor people I am dealing with often haven't seen a physician in many years, as the cost of diagnosis and treatment is beyond their means. I hire doctors three times a year to come to the villages and provide community members with free consultations, diagnosis, and medication.

AI is a boon for the collection and management of patient data. The tech can be used to summarize consultations, store patient histories, create personalized treatment plans, and help doctors to prescribe more efficiently. Ultimately, it would reduce the need to see a doctor in person. This type of technology is not very expensive, and the cost of using it is marginal.

Another promising area for intervention is education. Financial literacy is a big issue. Even if I gave people thousands of dollars, it doesn't mean that they would be able to eliminate their poverty. Applications such as chatbots and virtual classrooms are becoming cheaper. Customized versions could help poor people improve their financial literacy, general education, and even health education.

I'd also like to develop an app to foster community connection and encourage a positive change in attitudes towards poor people. This is already beginning to happen; young and energetic people from local villages are expressing interest in volunteering for my healthcare program.

Access to the internet is not expensive. I envision a community hub where villagers can access online tools, but for some services they will need a smartphone of their own. However, I think the benefit of using a smartphone and

internet will be much higher than the cost of using these technologies.

IF YOUR INTENTION IS TO SCALE UP, WHERE WILL THE MONEY FOR LOANS COME FROM?

I am currently running the project alone with the help of my family members, but I think that once people recognize the transparency and efficiency that is possible using AI and blockchain, more private lenders will come on board.

Without these technologies, particularly in underdeveloped countries and developing countries, there is so much complexity in every step, and many barriers.

As well as loans, I intend to facilitate donations. Corruption is a big issue with giving, so I plan to develop a reliable app that links potential donors directly to poor households. I will create a database of impoverished households with the socio-economic information that they are willing to share with the public. Anyone, from any corner of the world, would know who they are supporting and why.

At the end of the day, my dream is to prove that moneylenders do not have to be exploitive. Moneylenders like me can be blessings, depending on the purpose of the loan and the values and attitudes on which it is based.

Once I have presented the output of my projects to different stakeholders, including government, lenders, and other communities, I am confident I can attract the support to expand them in terms of scale and scope.

WE'VE HEARD PROMISES BEFORE ABOUT THE POTENTIAL OF CUTTING-EDGE TECH FOR LIFTING PEOPLE OUT OF POVERTY, BUT THE RESULTS HAVE BEEN MIXED. WHY IS THAT?

Due to AI, global GDP is projected to increase by about \$16 trillion (almost 14 per cent) by 2030. But unless we have inclusive growth, it won't have a positive impact on poverty and inequality. The benefit goes first to rich countries and rich people within those countries. That is why policymakers need to think about how to utilize these revolutionary technologies, because if we can make appropriate policies, blockchain and AI have huge potential for reducing poverty. Now is the time.

“THE USE OF SMART CONTRACTS IN SUPPLY CHAIN MANAGEMENT, PARTICULARLY IN THE RURAL AGRICULTURAL SECTOR, WOULD BE REVOLUTIONARY. MY ESTIMATION IS THAT WE COULD BOOST HOUSEHOLD INCOMES BY 30 TO 50 PER CENT.”



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» Students look over the banister in the six-storey Skeena Residence on UBC's Okanagan campus.

Photo by Paul Joseph / UBC Brand & Marketing



Photo courtesy of Darpan Magazine

ART AS ACTIVISM

The struggling grad who found his way from pain to purpose.

BY RACHEL GLASSMAN, BA'18, MA'20

AT AGE 19, Alex Sangha recalls, "I had given up." Grappling with internalized homophobia that led to self-hatred, he kept himself alive with the thought of his mother, who had raised him and his brothers as a single parent. She had always supported him, and he couldn't bear to cause her pain. Amid this suffering, Sangha recalls a sudden epiphany, "an out-of-body spiritual experience." His life did matter; he would use it for "seva, which in Punjabi means 'selfless service.'"

That commitment prompted Sangha to enrol in the UBC School of Social Work, kicking off a multi-faceted career. In 2008 he founded Sher Vancouver, a non-profit offering peer support groups, free crisis counselling, and referrals to queer South Asian and BIPOC youth and adults. In recognition of his work at Sher Vancouver, in 2018 Sangha received the Meritorious Service Medal from Canada's Governor General.

Sangha, who has a thriving counselling practice, is also a mental health advocate and open to sharing his own experience with bipolar disorder. "Mental illness is even more stigmatized than being gay," he says, so he speaks out to demonstrate that with bipolar, "you can live a healthy and productive life, you can achieve your goals, you can support a lot of people, you can have a family."

That's plenty to keep anyone busy, but Sangha surprised even himself with a turn towards the arts. "I got into filmmaking by accident," he says. "It was not a choice." In 2012,

Sher Vancouver's social coordinator and board member January Marie Lapuz was murdered. "She was a sex worker, and she was stabbed multiple times by a client," Sangha says. "I was not happy with how the media and the police were portraying her, basically saying she deserved to die because she was in a high-risk lifestyle." That narrative showed nothing of the vibrant person – "the mother of our group" – whom Sangha mourned. He channelled his grief into producing a short documentary, "My Name Was January," to tell a more holistic story about his friend.

The documentary's success (it earned 16 international awards and selection at 66 film festivals) taught Sangha that film is another "form of social work," a way to help ensure that trans women like January are seen as more than "statistics." After producing an award-winning feature documentary, *Emergence: Out of the Shadows*, about coming out as queer in Metro Vancouver's Punjabi Sikh communities, Sangha grew eager to share the spotlight with others wielding their art as activism.

To support social justice filmmaking, he co-founded the Sundar Prize Film Festival, debuting June 15-16 in Surrey. The festival is a celebration of resilience and the "capacity to flourish" that Sangha witnesses daily as a social worker and counsellor. "I want the audience to walk away with hope," he says.



Photo by Kim Beilavance Photographie

LIFE ON THE EDGE

How boulevard gardens can cultivate community.

BY JORDAN WHITEHOUSE

SABA FARMAND CAN still remember the day when he found what just might be his favourite garden in Vancouver. About 10 years ago, the landscape architect was out for a stroll in his new neighbourhood of Mount Pleasant. It was spring. Everything was blooming. And then there it was in front of a corner lot, filling up the sliver of land between the street and the sidewalk: ornamental grasses almost as tall as Farmand himself, hostas, ferns, evergreen shrubs, and perennial flowers bursting in yellows and purples and reds. "It was just like, 'Damn, this is amazing!'" remembers Farmand.

Known as boulevard gardens, these tiny urban oases start off as scraps of unremarkable turf, the likes of which can be seen all over the city. "Guerilla" gardeners began the surreptitious practice of turning such scraps into something more appealing, but nowadays some cities, including Vancouver, actively encourage residents to transform them into more eye-catching green

Saba Farmand, MLArch'12

<<

Landscape Architect

<<

Next challenge:

Having a coffee-table book published with photos of boulevard gardens from all over the world

spaces (as long as they follow certain guidelines).

Farmand was struck by how gorgeous the boulevard garden was that he found, and also by the fact that someone would go to all of this work to beautify their community. He soon noticed other boulevard gardens in the neighbourhood, met some of the planters, and started thinking about the positive social and environmental benefits they bring. "They are subtle little interventions," he says, "but they can actually bring a lot to a community. I really started to cherish them."

Now Farmand has turned that love into a popular Instagram account (@eastvan_blvd_gardens). He's also started giving

annual spring walking tours to highlight some of his favourite creations. All the proceeds from the tours go to Mount Pleasant Neighbourhood House (MPNH), a social services organization providing everything from childcare to programs for seniors.

Far from just presenting garden eye candy, however, both the Instagram account and tours are a way into bigger topics around environmental education, nature awareness, and urban literacy, says Farmand. Some of the Instagram photo captions, for instance, are about architecture, heritage, and the people who planted the gardens. Likewise, each tour stop is related to a larger theme. Farmand typically talks about how boulevard gardens allow more contact with nature and all the health benefits that can come from that. Then he gets into why urban biodiversity is important to environmental sustainability and how the gardens support that. The final few stops are more about the community itself, including some of its history.

From 23 participants in 2021 to about 200 last year, the walks have raised over \$4,000 for MPNH so far, says Farmand. "It's been so great to see these take off and give so much back." And to think it all started with just a walk around Mount Pleasant, he adds. He hopes it inspires others to hit the sidewalks too. "There's so much to uncover and appreciate just by walking around your neighbourhood. So get out there. Explore."



Dr. Haakon Nygaard
 Director of the Clinic for Alzheimer Disease
 and Related Disorders (CARD) at UBC

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REWIND

Storm the Wall

There's no getting around it – you just have to get over it.

BY RACHEL GLASSMAN, BA'18, MA'20



Storming the wall in 1991. Photo courtesy of UBC Archives (UBC 44.1/2457)

ON A SPRING day on UBC's Point Grey campus, Cookie Monster, Winnie the Pooh, a Minion, and a penguin hoist a student over a 12-foot wall. They're Team Storm the Onesie, and they're just one team of hundreds competing in Storm the Wall, a beloved multi-day annual spectacle held since 1978.

As the largest intramural event in North America, the 2024 event drew an estimated 4,000 participants. Each team member must conquer at least one event in a relay of biking, distance running, sprinting, and swimming; the entire team must make it over the wall. The camaraderie and the seeming impossibility

of the task – anyone who's seen the wall up close knows it looks imposing – attracts the most intrepid students, alumni, faculty, staff, and community members. They compete in teams with names like Not Fast, Just Furious; Women in Male-Dominated Fields and Bill; and Retired but Not Tired.

Then there are the rare ambitious competitors, who take on the relay course alone and scale the wall unassisted. If they succeed, they claim the title of "Iron Legend." Dominic Janus, one of only two Iron Legends in 2023, attributed his success at the wall to his biology fieldwork as a graduate student. His research is "pretty physical," he told *The Ubyyssey*, with "a lot of pounding wood into the mud to build fences." Storm the Wall was just one stop in his busy day: before his victory on campus, he'd spent the morning catching geese in Delta.

The intrepid spirit of the competitors is equally essential for the UBC Recreation staff and hundreds of volunteers running the event. Sophie Bockhold (BSc'17), a former UBC Rec events director, recalls standing outside for hours one soggy Storm the Wall to check in participants. Her shoes filled with water, and by the end of the day her feet had turned a fiery red, with a burning sensation to match. A Google search of her symptoms yielded an at-home diagnosis: she had a mild case of trench foot.

Bockhold found her affliction hilarious, taking it as proud evidence of her own and her colleagues' outrageous dedication to Storm the Wall – dedication that required round-the-clock enthusiasm. Until recently, it was tradition for volunteers to take shifts camping overnight in a van by the wall, defending it from pranksters (in the 1980s, someone burned the wall down) and protecting the overzealous from themselves (students in various states of sobriety try to scale the wall in the dead of night). "We'd yell at people to get down," Bockhold recalls. "It was surprisingly busy."



Tenant

BY CARRIE GRINSTEAD, MLIS'14
ILLUSTRATIONS BY MICHELLE PEREIRA

NIGHT FELL QUICKLY in Jeanine's city, or it didn't come at all. All through July, children flew from their homes long after supper and pedaled bicycles up and down the sidewalk. Fireworks burst in blue sky. Often there were little parties in Jeanine's own garden.

Affie, her tenant, was a sweet American girl who had moved to Vancouver for her master's in social work. She had many friends, and one or another or several were over most nights. Laughter washed gently over Jeanine's bed, and she slept better that summer than she had in a long time.

Affie was gone one night, garden hushed and stairwell to the basement suite dark against the endless day. Jeanine endured twitching legs and a dry mouth and aggressive, fitful dreams. She was still tangled in the sheets when Affie came upstairs at 10 the next morning.

"Hey, Jeanine! I have something for you."

"Just a minute," she called, and she went hot all over with shame. It took nearly 20 minutes to shuffle to the washroom, change to day clothes, sort through morning meds and clear the fog in her head at least enough to imagine what she might say. She tried to straighten her spine, look happy and alert, but she emerged to an empty kitchen. A piece of chocolate cake in three layers sat on a serviette on the table. Affie had written a note and a drawn a little heart.

Enjoy!!

Jeanine was 70. She felt and probably looked older, but past a certain point no one cares how old you are precisely. Her hair was white, thin,

cropped close. Osteoporosis had curled her shoulders and set her neck at a sharp forward angle. She took stool softeners, diuretics, nitrates, antidepressants. A nurse came twice a week. A gardener pruned the hostas. A cleaning woman vacuumed the carpets and dusted boxes holding toys and collars of long-ago cats. Jeanine could still drive but rarely did.

She was born and had lived every day of her life in her house on Dunbar. Her parents had come west when Vancouver was barely a city, dug a big foundation into the hill and must have imagined a family that could fill four bedrooms, but they never made Jeanine feel that she was not enough. When she was 20 and got her job as a file clerk at the UBC registrar's office, her mother and father sent builders downstairs to make a bedroom and living room, bathroom and kitchenette. Separate entrance from the garden, ground-level windows. For the next 20 years Jeanine lived in the basement suite. Then her parents died quietly, one after the other, and she moved back up. She donated clothes but kept Hummel figurines and souvenir spoons. She had upgraded fixtures installed in the master bath and put a new mattress on the bed. Tried not to dream. She rented the suite cheaply to students.

She retired at 65. She would have kept on, but student workers got frustrated whenever she tried to show them how to edit records and stopped because she couldn't breathe.

In 45 years, she had seven bosses. She learned to type. She was already old when decades of files were moved to Hollinger boxes and sent to off-site

storage, when cubicles and computers appeared and the last of her old friends quit. She learned Blackbaud. She did not complain.

There were mornings when she walked through Camosun Bog and got the bus on 16th. There were days when it was already dark at four in the afternoon, and she held a folder over her head because she'd forgotten her umbrella, hurried laughing to the Student Union Building. One boss once decided to have an office retreat on a tall ship. Everyone who wasn't seasick sang stupid songs and played getting-to-know-you games as they cruised the Georgia Strait. And in the late afternoon she, Jeanine, wearing a one-piece and baggy shorts, climbed up into the rigging. She was shaking hard, they teased her from the deck, but the distance telescoped as she rose. She went 12 metres, jumped into the sea, and bit her lip on the way down.

All of this happened. She knew, she remembered. She believed that in a drawer somewhere it was recorded. Still, at 70, she saw only the future clearly. The days to come were real, and the past seemed invented.

The stroke hit early one morning. In a black tunnel, she hoped she was still dreaming and listened for the long whistle of the train. Reached for another passenger, found her cane, banged it against the floor. Affie in a silky pajama set ran up the stairs. It was a small stroke, and by the time she reached the emergency room she already felt the way she always did. More or less. A little sad, a little empty. Deeply embarrassed for Affie

to have seen her like that. Gurgling, and saying words that were not the words she meant.

Two days in the hospital, and then Affie picked her up. Affie helped her up the front steps. WELCOME HOME balloons floated on the kitchen ceiling, and it was too kind, too much. She wanted the tunnel and the dark, but she relaxed in the days that followed. Affie bought casseroles from Stong's and sat with her in the living room and watched talking heads on TV. Bit by bit she started to tell Affie how much she hated it, being old and getting older, and Affie had sharp little incisors that made her look like a kitten when she smiled. "I think you're crushing it," she said. "I think you get better and better every day."

Affie was not the first tenant to be something like a friend, to bring her little gifts, join her for meals, and insist she must have so many stories to tell. But she had liked Affie best even before the stroke. Affie was easy to like. Bouncy curls, dimples, delicate tattoos on three fingers. She was interviewing teenagers at Musqueam and writing her thesis on healing from intergenerational trauma. She called herself a settler and a colonist, then said, "I do know how that sounds. Like I'm just telegraphing to everybody, hey, I'm a white woman from the US, but I promise I'm one of the good ones."

It was Sunday afternoon, and they walked slowly up the hill. Jeanine tried to listen and tried to breathe through her nose. They reached the café, and Affie folded Jeanine's walker and hooked the LeSportsac of meds to the back of Jeanine's chair. Over Earl Grey and cucumber sandwiches, Affie said she and Nathaniel were thinking about spending some time on the island before summer ran out. "Do you have a favourite spot? I think we should just go to Victoria, I still haven't been, but he says there are other places that are more special."

"Nathaniel?" Jeanine asked.

"Haven't I introduced you? Next time he's over I'll bring him up."

Jeanine should have her own space, her parents had said, when she was 20 and working and might, they thought, want to have boyfriends over. And when Affie first moved in, she'd asked if Jeanine had any kids. "No," Jeanine answered. Affie blinked and waited, but there was nothing much to tell. Before there are children, there must be a boyfriend. Jeanine never wanted one, and none ever wanted her.

Affie would finish her degree requirements in December. Then, probably, she would leave. Go back to Oregon, or apply for permanent residence and move to an above-ground apartment in Kits. Weep at her garden wedding. Load small children into carriers for weekend hikes at Deep Cove. Send Jeanine Christmas cards, at least for a while.

Jeanine took the last sandwich from the tray and nudged the bread off and studied dill as if there were secrets in it. "You know," she said, "if you want, we could switch places."

Affie hitched one side of her mouth into a smile. "Places?"

"I'm sure the upstairs isn't how you like but you can redecorate. You're young and you'll have a family and you need space. The basement suite is more than enough for me. I wouldn't change your rent."

Affie's eyes widened. She laughed low and said, "Oh. Gosh. Nathaniel and I have only been seeing each other a few months. We aren't at 'family' yet."

Give it time, Jeanine thought. Let her imagine tiny feet in the long hall, just as Jeanine now imagined, now remembered the creaks and sighs of the basement suite ceiling. She had really been quite happy down there, for a good long while.

That evening she heated a pot pie, opened a ginger ale. She heard Affie from below, talking on the phone. "Yeah, I know," Affie said, and Jeanine went to stand at the top of the stairs.

"Obviously," Affie said.

She said, "If I leave I'll have to take out a loan just to pay rent. There's nothing else like this."

Affie took a shivering breath, and her voice was higher, sharper than normal. "Jeanine is great," she said, "but it's just, she's old and she isn't well and I'm not her daughter. What happens when she dies? I don't want to be here for that."

I don't want to be here for it either, Jeanine thought. Maybe she said it aloud, and Affie went quiet. The basement lights clicked off. The garden door opened and closed. Jeanine evicted her the next day.

Spiders laid their eggs and stretched webs from tree to tree. From the basement windows, at the thin edge of day, they glittered with dewdrops. All the little creatures, Jeanine thought, were stringing lights for her.

Affie had asked for more time, and Jeanine had refused it. She invented



a grand-niece, moving from Kelowna because her husband had been transferred. A whole clutch of littles and another on the way. They needed the upstairs as soon as possible, and Jeanine needed to resettle in the basement.

She moved down as if it were all true. She paid the cleaning woman to move a few sweatsuits, the frozen foods, the television, and then she let her go. The gardener, too, she dismissed, and sedges went limp in the rain. The nurse alone came, rested two fingers on Jeanine's wrist and proved she was living still.

This year marks alumni UBC's first short fiction contest for alumni. "Tenant" was chosen as the winner from almost 100 entries. Carrie Grinstead is a writer, librarian, and horse girl who lives in Los Angeles. Her first collection of stories, I Have Her Memories Now, was published by Howling Bird Press in 2022.

The contest jurors, all UBC alumni, were Annabel Lyon (author, director of UBC's School of Creative Writing), Michael V. Smith (author, professor of creative writing), Danny Ramadan (Syrian-Canadian author), and Umar Turaki (writer and lecturer at UBC Okanagan's Faculty of Creative and Critical Studies).



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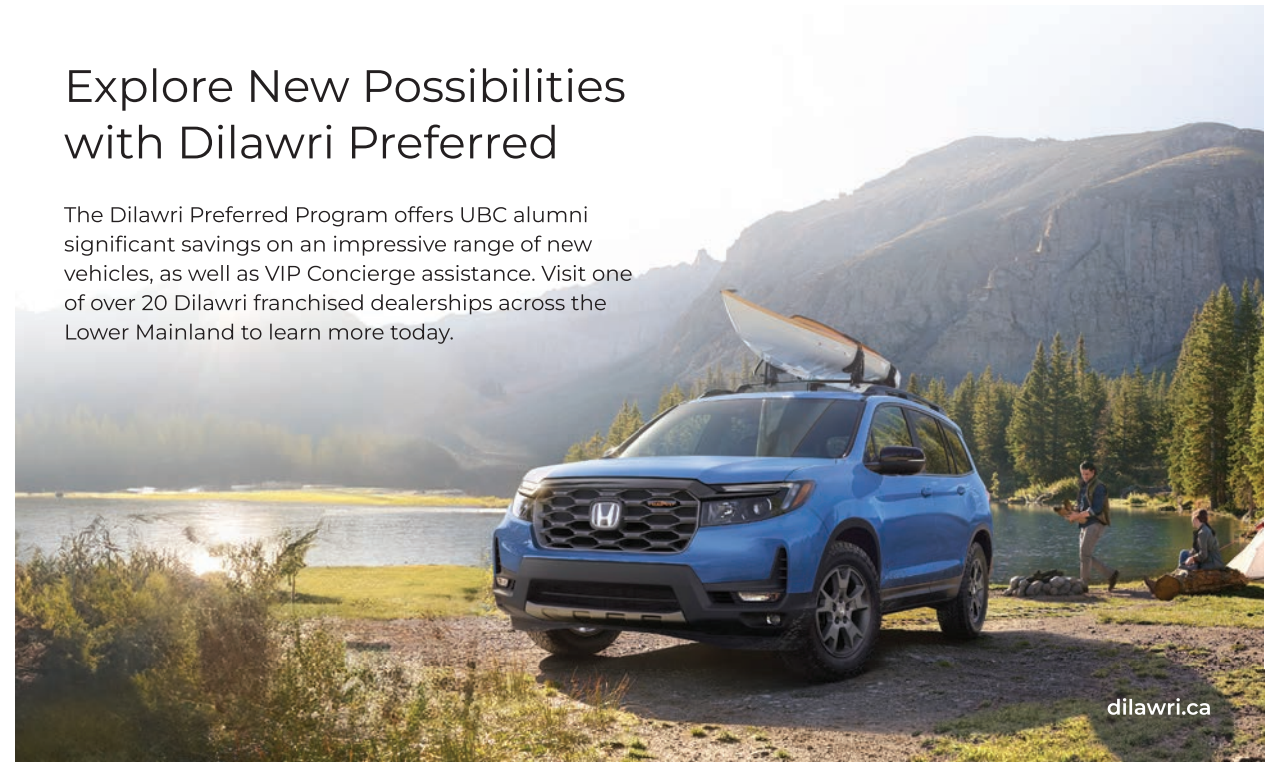
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Why it's time to consider eating more insects

Insects are highly nutritious, and there are many delicious ways to incorporate them into your diet.

BY CAROLYN ALI AND SACHINTHA WICKRAMASINGHE

DR. YASMIN AKHTAR understands that many people are squeamish about eating bugs. But she hopes that those who are will open up to the idea for the sake of the planet – and their own health.

“People should be thinking about alternative protein sources, and insects could be the meat of the future,” she says. A sessional lecturer in the Faculty of Land and Food Systems at UBC, Akhtar teaches an applied biology course about the benefits and risks of eating insects. She points out that the world’s population is expected to increase to 10 billion by 2050, and eating more insects is one way to help feed more people sustainably as the climate changes.

People in many cultures around the world already incorporate insects into their diet, she notes, in countries such as Mexico and Brazil. But for those to whom the idea is new, there are many reasons to give it a try. Akhtar offers some entry-level tips:

WHY EAT INSECTS?

There are two key benefits to eating insects, according to Akhtar. The first is environmental. Eating insects encourages the sustainable use of diverse insect species, rather than relying on a small number of traditional livestock species to meet the world’s needs. And while some insects can be caught and eaten in the wild, farming insects is a way to provide for large-scale protein needs at a relatively cheap cost. That means small-scale farmers can benefit. “Rearing insects requires much less space, fewer resources like water, and much less feed,” she explains. Farming insects produces much lower greenhouse gas emissions than cattle or pigs, for example.

The second reason is health. “Many insects are incredibly nutritious,” she points out. “They are high in protein, calcium, good fatty acids, and vitamins.” For example, a species of grasshopper commonly eaten in Mexico, *Sphenarium purpurascens*, contains 48 grams of

protein per 100 grams, compared to 27 grams of protein per 100 grams of beef. Insects such as crickets and mealworms can be ground and made into flour or protein powder. Insect protein is easily absorbed by humans, and some insects contain all the essential amino acids that humans need.

HOW TO EAT BUGS

You can eat bugs such as crickets whole. “They usually have a nutty flavour, and insects absorb the flavor of spices very well,” says Akhtar. She likes to barbecue crickets, which dry out and become very crunchy. She also uses roasted crickets to add texture to dishes such as hummus.

But Akhtar acknowledges that eating chocolate-covered ants, for example, may not appeal to everyone. “For some people, eating insects triggers a disgust response. They’re thought of as dirty, and pests.”

There are indeed risks to eating insects: those captured from the

wild could be contaminated with pesticides that were used to spray fruits and vegetables. Insects also live in a lot of different environments, including soil, and can be infested with microorganisms like bacteria, fungi, and viruses.

But the risks can be mitigated similarly to how we carefully source and prepare other things we eat. “Just like other animal proteins, insects should be treated before they are consumed, using heat to boil or cook them, for example,” says Akhtar.

You can purchase insects from insect farms, where they are safely raised to be used as food. But if you’re allergic to seafood, take note: you’ll likely also be allergic to insects because they share similar protein allergens.

CRICKET FLOUR AND BUG PROTEIN POWDER

While insect products are still scarce in North American grocery stores, they are available online. Akhtar acknowledges that farmed

insects aren’t currently an inexpensive protein source. But she’s optimistic that as acceptance of eating insects rises and demand goes up, the number of insect farms will grow, and prices will decrease.

“Insect flours and insect powders are an easy way to incorporate bugs into your diet,” she says. Simply replace wheat flour in any recipe with insect flour for tasty, high-protein baked products. She uses insect flour to make samosas, muffins, tortillas, and more.

Those starting off can use a small amount first; for example, replace half the regular flour or protein powder in a recipe with an insect version. Once you’re used to the nutty taste and texture, go from there. Akhtar adds cricket protein powder to smoothies and green tea for extra nutrition, and sprinkles it on veggie fried rice.

This feature was originally published on beyond.ubc.ca



Photo by Afifa Images/Alto Images via Getty Images

Dr. Akhtar’s recipe for a berry smoothie with cricket protein powder

INGREDIENTS

Note: Fruit may be fresh or frozen

- ½ cup (125 mL) Greek yogurt
- 1 cup (250 mL) milk
- 1 cup (250 mL) strawberries
- 1 cup (250 mL) blueberries
- ½ cup (125 mL) cranberries
- 1 banana
- 1 date
- 1 tsp (5 mL) chopped almonds
- 1 Tbsp (15 mL) cricket protein powder
- 2 tsp (5 mL) honey
- ½ to 1 cup (125 mL to 250 mL) ice cubes

METHOD

Put all ingredients in a blender and process until smooth. Serve with fresh mint leaves on the top. Makes two large smoothies.



Photo by BakasRaw by Karolin Baitinger

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Dr. Benoit-Antoine Bacon
UBC President and Vice-Chancellor

A FEW SHORT months ago, it was my privilege and honour to begin a five-year mandate as President of UBC, a great institution that I have long admired. Since then, every day has been both a gift and an adventure. UBC is brimming with world-class research talent, brilliant and motivated students, and all kinds of initiatives that push the boundaries of human knowledge and strive to build a better world. It is an endlessly fascinating place, and one that inspires hope.

For the past 15 years, I have been serving university communities in leadership roles because I know that what happens at places like UBC matters on a grand scale. When I think of the biggest challenges that our world faces – climate change, social inequity and division, chronic health issues, and massive geopolitical upheaval – I know that our best hope for a better world is through research, through reasoned and respectful debate, and through a great education that sends our students out into the world smarter and hopefully wiser than we were. The way forward can only be forged here at UBC, and at other great universities around the world.

That is why FORWARD, the campaign for UBC, is so aptly named. Publicly launched in 2022, the campaign is a critical step in our response to these challenges. Already, we are well on our way towards our goal



of raising \$3 billion. These gifts will supercharge important research, greatly enhance the student experience, and support our brilliant people in fulfilling UBC's mandate to advance healthy lives, shape thriving societies, and find solutions for our planet. The goal is always social impact and improving quality of life for everyone, near and far.

The campaign also aims to keep you, our almost 400,000 alumni, engaged and invested in these efforts and involved in the life of the university. The number of you who already are is growing year after year, whether it be by volunteering to mentor a student, making a donation to support research into things you care about, or simply taking advantage of the many services offered by *alumni UBC* to enhance your life and career (because when our alumni thrive, it can only reflect well on UBC).

I look forward to the next number of years at this phenomenal place of discovery and learning, and urge you to stay connected as crucial partners in realizing its full potential.

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▶ Mikaela Gauer at the 1 Hotel Brooklyn Bridge, with its sweeping views of the New York City skyline. Photo courtesy of Mikaela.

Mikaela Gauer (BA'08) is a creative director and photographer who has been living in New York City for the past 14 years.

New York City, United States

Insider travel tips from alumni in the know.

WHAT THREE WORDS BEST DESCRIBE NEW YORK CITY?

Magical urban jungle.

HOW DID YOU COME TO LIVE IN NEW YORK CITY?

Two weeks after my UBC graduation, I travelled to NYC to visit some friends. I was swept up in the city's intoxicating energy and postponed my return flight by a month. The month came and went, and I ended up cancelling the flight. I got an internship at *TRACE Magazine*, which turned into a full-time job offer that set my career in motion.

WHAT DO YOU LIKE MOST ABOUT LIVING THERE?

New York is a microcosm of the world, a melting pot of every country, language, and creed. It's the heartbeat of culture and a city full of possibilities. You can access any type of experience you want if you're curious and open.

DESCRIBE YOUR FAVOURITE NEIGHBOURHOOD.

Each neighbourhood is unique and I encourage visitors to explore as many neighbourhoods as possible to get a sense of New York's diversity. I have spent most of my time living in Brooklyn – eight years in Fort Greene, and most recently in Greenpoint. I love Greenpoint – a predominantly Polish neighbourhood that lies just north of Williamsburg on the East River.

IF YOU COULD CHANGE ONE THING ABOUT NEW YORK, WHAT WOULD IT BE?

The amount of garbage on the streets. And with the trash come the rats. You know you're a New Yorker if a rat has run over your feet more than once.

WHAT MIGHT SURPRISE A VISITOR ABOUT THE CITY?

New Yorkers are some of the most welcoming, friendly, and kind people – it is a city made up of immigrants. Also, you can walk everywhere. It's definitely the best way to explore and get a feel for the city. After a while, the city feels small and you realize how interconnected everything is. New York has a ton of green space, despite its reputation. Some of my favourite parks to chill, read, or people-watch are McCarren Park, Fort Greene Park, Washington Square Park, Prospect Park, and of course, Central Park. It's magnificent.

WHAT ARE YOUR FAVOURITE HIDDEN GEMS OR ACTIVITIES THAT ONLY LOCALS KNOW ABOUT?

There are a handful of speakeasies and secret bars all over the city, but my favourite is Mezcaleria La Milagrosa – a hidden mezcal bar in Williamsburg. Another true gem is Toñitas – the oldest Puerto Rican social club in Brooklyn.

BEST TIME OF YEAR TO VISIT

May to June, September to October.

BEST PLACE TO STAY

1 Hotel Brooklyn Bridge or The Bowery.

BEST VIEW

Westlight @ The William Vale Hotel, The MET Rooftop, The Brooklyn Bridge, Staten Island Ferry, Summit One – the list is endless.

BEST CULTURAL EXPERIENCE

Live music is the heartbeat of New York. From Broadway to jazz clubs to subway musicians – take it all in.

BEST STREET FOOD

Tacos.

COOLEST STREET

Doyers Street in Chinatown.

LATEST TREND

New Yorkers are nonconformists. Just be you.

MARKS OUT OF 10 FOR TRANSIT

7/10

Order a cerveza (*en español, por favor*) and join in the salsa dancing.

You can find incredible art collections within the city and outside of it. Dia Beacon, Storm King Art Center, and Philip Johnson's Glass House are all worth a day trip.

WHAT'S THE MOST OVER-RATED TOURIST HOTSPOT?

There are several places you can visit to see them once – and then never return. Real New Yorkers avoid Times Square like the plague. The High Line and Chelsea Market are always packed with tourists. Brave it for the best tacos in the city (Los Tacos No. 1) and then head north to the galleries in Chelsea, or south to The Village.

HOW EASY IS IT TO MEET NEW PEOPLE?

Life in New York happens on the street. If you put yourself out there, you can meet any kind of person in New York.

WHAT ISSUES ARE PARTICULARLY IMPORTANT TO THE PEOPLE OF NEW YORK CITY?

• Transportation. The MTA is the

largest transportation system on the continent, but it's not without its problems. • Affordable housing. New York has the most expensive rental market in the entire country and it's continuously on the rise.

WHAT IS ONE LOCAL CUSTOM THAT EVERY VISITOR SHOULD KNOW ABOUT?

Talk to your cab driver. Cabbies are some of the most interesting people in New York and typically have a wealth of stories to share.

Alumni volunteers host fun My Town Meetups in locations around the world. Check out our Meetups page to see if there's a gathering near you – or sign up to host one in your location.

alumni.ubc.ca/my-town-meetups

FINDINGS

Did pandemic lockdowns benefit wildlife?

UBC study challenges popular notion that all wildlife thrived during COVID-19 restrictions.

THE RESEARCH:

A wildlife study used data from more than 5,000 camera traps, captured before and during the COVID-19 lockdowns, to examine animal behaviour amid changing levels of human activity.

THE BOTTOM LINE:

The work revealed that wild animals react differently to humans depending on where the animals live and what they eat. The researchers hope these findings will inform new strategies for wildlife conservation.

"COVID-19 mobility restrictions gave researchers a truly unique opportunity to study how animals responded when the number of people sharing their landscape changed drastically over a relatively short period," says the

study's lead author Cole Burton, an associate professor of forest resources management at UBC and Canada Research Chair in Terrestrial Mammal Conservation.

Although many people might assume that animal activity increased during COVID-19 lockdowns, the research revealed this was not necessarily the case. "We saw great variation in activity patterns of people and wildlife," says Burton, "with the most striking trends being that animal responses depended on landscape conditions and their position in the food chain."

Urban animals such as raccoons may become more active around people, as they get used to human presence and find food, which they can access at night. But animals

living further from developed areas are more wary. Carnivores like wolverines, wolves, and cougars were generally less active when human activity was higher and notably absent from the most human-dominated landscapes. Large herbivores in both cities and more remote areas became more active as human presence increased but also more nocturnal.

A better understanding of how wildlife responds to human activity helps inform strategies for conservation. "In remote areas with limited human infrastructure, the effects of our actual presence on wildlife may be particularly strong," says UBC biologist and study co-author Kaitlyn Gaynor.

"To give wild animals the space they need, we may consider setting aside

protected areas or movement corridors free of human activity, or consider seasonal restrictions, like temporary closures of campsites or hiking trails during migratory or breeding seasons."

In areas where people and animals overlap more, such as cities, the strategy would be different. Since nighttime is an important refuge for urban wildlife, conservation efforts may focus on reducing human-wildlife conflict after dark, such as more secure storage of trash bins to reduce the number of animals getting into human food sources, or measures to reduce vehicle collisions.

The study involved collaboration with 220 researchers from 161 institutions and covered 163 mammal species observed on cameras around the world.



A mountain goat walking through a campground in Cathedral Provincial Park, British Columbia, Canada. Photo courtesy of Cole Burton.

ONLINE DATING INFLUENCES PARTNER CHOICE

THE RESEARCH:

A UBC sociology study examined how the ways that heterosexual couples in Canada meet might affect their selection of partners – with respect to education, race, immigrant status, and age.

THE BOTTOM LINE:

In most respects, the researchers concluded that the use of online dating websites, apps, and chatrooms increases the likelihood of Canadians choosing romantic partners who differ from themselves.

Using the results of a 2018 national survey, the study compared data between Canadian couples who met online and those who met offline through various channels, such as work, school, or church, or through introduction by friends or family.

Researchers found that online dating promotes relationships between people of different education levels and those of different immigrant status (ie: Canadian-born individuals and immigrants to Canada). Online dating also decreases the likelihood that people partner with someone of a different age.

"Online dating opens up a world of diverse partners for us, and this research shows how segregated our social networks can be," said Yue Qian, an associate professor of sociology at UBC and the study's lead author. "The prospective partners we meet through family and friends, or work and school, tend to be more similar to us in terms of education, immigration and race," Qian said. "There are more opportunities to encounter someone different online."

Some interesting patterns emerged in the study: Compared with offline dating, online dating is associated with a higher probability of an immigrant to Canada pairing with a Canadian-born partner – in particular, an immigrant man and a Canadian-born woman. This highlights the potential of dating technologies for blurring immigration-based social boundaries.

Online dating also promotes more relationships

between people of different educational levels – in particular between more educated men and less educated women. This echoes

"Everyone is curious about how couples meet, and unpartnered people are often interested in how they can find a partner," says

“Online dating opens up a world of diverse partners for us, and this research shows how segregated our social networks can be.”

prior research showing women online daters are reluctant to contact men with a lower education.

The study also found that couples introduced by family or friends were more likely to be of the same race than partners who met online. This suggests racial segregation in our existing social networks plays a strong role in brokering intimate relationships between individuals of the same race.

Qian. "The overarching point is that, if you decide to use online dating options, keep an open mind and embrace the diverse pool."

Future research directions may include regional differences in dating patterns and a study of the same topic among sexual- and gender-minority couples.

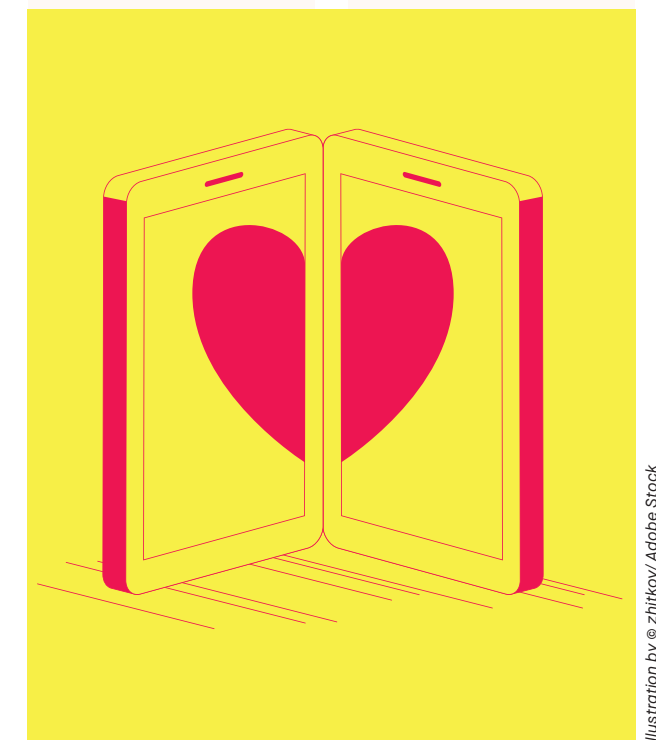


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- alumNIGHTS: Hillsboro vs Vancouver at the Nat | JUNE 27
- THE A PROJECT: Clean-ups Across Canada | JUNE (VARIOUS DATES)
- alumni UBC Foodie Tours: Cocktails and chopsticks | (JUNE/AUGUST)
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THE SCOOP

Volkswagens, visionaries, and veterans

1. IN A 2001 PRANK, UBC ENGINEERING STUDENTS HUNG A RED VOLKSWAGEN BEETLE FROM WHICH ICONIC BRIDGE?

- a. Burrard Street Bridge
- b. Brooklyn Bridge
- c. Golden Gate Bridge
- d. Sydney Harbour Bridge



2. VLADIMIR PLAVSIC, THE ARCHITECT BEHIND THUNDERBIRD STADIUM, WAS ALSO KNOWN FOR:

- a. Winning Canada's first international sailing race trophies
- b. Being a world champion swimmer and water polo player
- c. Speaking five different languages
- d. All of the above



3. THE DESIGNER OF WHAT ICONIC FLAG TAUGHT HISTORY AT UBC?

- a. The British Columbian flag
- b. The Canadian flag
- c. The Olympic flag
- d. The United Nations flag



4. WHAT PURPOSE DID THE TOWERS AT TOWER BEACH SERVE DURING WWII?

- a. Soldier barracks
- b. Artillery gun storage
- c. Graffiti canvases
- d. Searchlights for defense

5. WHAT UBC ARTWORK HAS BEEN FEATURED ON CANADIAN CURRENCY?

- a. Kwakiutl (Thunderbird), located outside the Student Union Building
- b. Reconciliation Pole, located outside the Forestry Building
- c. The Raven and the First Men, located at the Museum of Anthropology
- d. Story Poles, located in the central courtyard of UBC Okanagan

6. WHO OFFICIALLY OPENED UBC'S INTERNATIONAL HOUSE, A MEETING PLACE FOR INTERNATIONAL STUDENTS?

- a. Eleanor Roosevelt
- b. Pierre Trudeau
- c. Kofi Annan
- d. David Suzuki

1. c: For a prank still considered the greatest they ever pulled off, engineering students attached the shell of an old Volkswagen Beetle to the railing of the Golden Gate Bridge and then tossed it over the side. An "E" and a Canadian flag were painted on the side of the car. The authorities were not amused.

2. d: Vladimir Plavsic was a Yugoslavian-born architectural student at UBC who graduated in 1957. He fought the Nazis as a teenager, slipped through the Iron Curtain in 1951, and emigrated to Vancouver where, as an architect, he became known for his skill in "Brutalism" design.

3. b: George F.G. Stanley held the first chair in Canadian history at UBC.

4. d: The towers housed 60-inch searchlights capable of a three-to-five-mile projection into the Burrard Inlet to help spotters identify an incoming German or Japanese attack. They were part of Vancouver's most heavily armed defense battery, which hosted 250 soldiers and three six-inch artillery guns. The foundations and tunnels can still be found next to the Museum of Anthropology. Since the 1970s, the towers have become popular graffiti canvases.

5. c: The Raven and the First Men carving in the Museum of Anthropology was featured on the Canadian \$20 bill from 2004 to 2012.

6. a: International House was opened in 1959 to meet the social needs of the growing international student population. Today, UBC is considered North America's most international university (Times Higher Education, 2022). Former US First Lady Eleanor Roosevelt was invited for the opening ceremonies.

NEWS FLASH



VANCOUVER

NEW CYCLOTRON PROMISES TO ACCELERATE CANCER DIAGNOSIS

A \$50.5 million investment from the provincial government and the BC Cancer Foundation is funding new research and a state-of-the-art cyclotron machine and radio-pharmacy laboratory that promise to greatly enhance cancer care.

Operating at the UBC-based TRIUMF, the world's largest cyclotron particle accelerator, the new machine will be able to generate more radioactive isotopes vital for medical imaging machines used in cancer detection and monitoring. It will also support research in theranostics, a combination of therapeutics and diagnostics that "acts like a homing device to seek out tumour cells and deliver highly precise treatment," says the BC Cancer Foundation. "A game-changer in medicine, theranostics saves time and money, spares patients harmful life-altering side effects, and is showing incredible promise in saving the lives of metastatic patients."

Scheduled for completion in 2025, the cyclotron and laboratory will increase BC's annual scan capacity for PET/CT scanners from 16,000 to 41,000, and have a profound impact on patient care throughout BC.

MUSEUM OF ANTHROPOLOGY SCHEDULED TO REOPEN IN JUNE AFTER SEISMIC UPGRADES

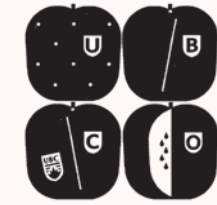
The Museum of Anthropology (MOA) is set to reopen on June 13 after undergoing extensive seismic and cosmetic upgrades. It has been fully closed since 2023, with the Great Hall shuttered since 2020.

To improve its earthquake resilience, seismic base isolators have been installed beneath the suspended main floor slabs to absorb impact. The renovation project has also included other critical upgrades, including fire protection, skylights and windows, and artificial lighting. These enhancements aim to better showcase and protect the Museum's invaluable collection.

MOA has been collaborating closely with Indigenous communities to prepare for the reinstallation and reinterpretation of significant works, including carvings, poles, belongings, and artworks, ensuring they are presented in culturally appropriate ways within the Great Hall.

Illustrations by Raymond Beisinger

UBC Wellbeing is a collaborative effort to make the university a better place to live, work, and learn. It promotes things like mental health, physical activity, healthy diets, and social connection. The following figures are from its 2022-23 annual report.



OKANAGAN

households individuals

9,039 32,150

Number of households and individuals served by the Acadia Food Hub, a UBC community project that provides food and baby supplies to households that need them.

4,000lbs

Amount of produce donated by UBC Farm to the Vancouver Food Runners, Quest Food Bank, AMS Food Bank, and the Sprouts Community Fridge to support local food security.

66,419,312

Number of steps walked collectively by 750 students, faculty, staff, and community members during UBC's Walk for Joy, an annual nine-week walking and rolling challenge to help promote movement and social connection.

50% | 40%

Percentage of all trips to and from UBC Vancouver / UBC Okanagan made by sustainable and active transportation modes of walking, cycling, or public transit.

AN APPROACH TO WILDFIRE COEXISTENCE

Last year's wildfire season was Canada's most destructive on record. The UBC Okanagan community experienced the severity firsthand when an evacuation order was issued on August 18 due to the nearby McDougall Creek Wildfire, which spanned 13,700 hectares and led to the deployment of more than 500 firefighters on the Kelowna campus.

Not only are wildfires a threat to human life, they also kill and displace wildlife, destroy property, and contribute significantly to air pollution and its accompanying effects on health. Responding to the escalating wildfire crisis, UBC Forestry has launched the Centre for Wildfire Coexistence (CWC), which seeks to create healthy and resilient forests through proactive management and eco-cultural restoration, and help communities to coexist with wildfire. Thanks to a generous \$5 million contribution from the Koerner family, the CWC will embark on pioneering research to evaluate the effectiveness of wildfire management strategies and co-create solutions with vulnerable communities.

Under the leadership of Dr. Mathieu Bourbonnais, a former wildland firefighter and current assistant professor at UBC Okanagan, and Dr. Lori Daniels, Koerner Chair in Wildlife Coexistence, the Centre will establish a robust community outreach and education program while supporting innovative approaches and novel discoveries in partnership with leading researchers, Indigenous Knowledge Holders, government agencies, and fire- and land-management professionals.

The upcoming "Wildfire Coexistence in BC: Solutions Symposium," scheduled from June 3 to 5 at UBC Okanagan, will bring together BC's leading wildfire experts and practitioners to highlight the urgent need for a transformative vision and implementation strategy for addressing wildfires. The symposium emphasizes that the 2017-2023 fire seasons were not isolated incidents but rather a new and escalating reality driven by climate change.

Illustrations: Raymond Beisinger

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magazine.alumni.ubc.ca/podcasts/here-forward



FINDING HOPE IN CLIMATE ACTIVISM

When UBC economics student Abul Bashir Rahman was in Grade Nine, he learned that one-third of his country, Bangladesh, would be underwater by 2050 as a result of climate change. This realization set him on a path towards climate action and inspired him to cycle across Bangladesh to see the effects of climate change first-hand and hear the stories of some of the people most affected by it. Learn about his journey.

REIMAGINING THE DATING EXPERIENCE FOR GEN Z

Have you ever found love on a dating app? In this episode from Valentine's Day, hosts Carol and Jeevan connect with UBC student and entrepreneur Connor Rose, who co-founded the app IRLY that offers a unique Gen Z spin on making a match. They discuss the app's early days in the entrepreneurship@UBC program, share the Cameron Dallas connection, and attempt to uncover what Gen Zers look for in a partner.

FROM PHARMACY TO FARMING: ONE UBC ALUM'S ADVENTURES AS AN ENTREPRENEUR >>

Listen to a conversation with UBC pharmacy alum Avi Gill (BSc'12, BPSc'16), one of the owners behind Farming Karma, a "farm to can" soda-making company based in the Okanagan. Discover the brand's evolution from a family farm to a thriving enterprise that produces award-winning fruit sodas, and hear insights from Gill as he reflects on his "wild journey" to becoming an entrepreneur.



WEBCASTS



Learn from the experts.

magazine.alumni.ubc.ca/webcasts

SUSTAINABLE SOLUTIONS FOR A HEALTHY PLANET >>

We're on the verge of a bioproduct revolution, with new and innovative products offering potential commercial benefits while conserving resources and reducing waste. What challenges and opportunities will industries like food processing, pulp and paper, or bioenergy face in adopting these next-generation materials and consumer products? How can businesses best leverage these opportunities in pursuing their environmental, social, and governance goals? In this webinar, hear an expert panel discuss current industry trends and how we can promote a more robust circular bioeconomy.



CAREER WEBCASTS

ARITZIA CEO, JENNIFER WONG >>

What can you do to inspire inclusion? Hear from business leader Jennifer Wong (BA'91), who rose from a shoe buyer at Aritzia to leading the Vancouver-based company as its CEO. Learn how she cultivates a culture of learning and creativity so you can encourage acceptance and belonging in your own workplace.



CAPITALIZE ON CAREER UNCERTAINTY

Industry disruptions and instability are now constant — as is the buzz word "pivot." But when is the right time to change roles or switch industries? Equally important, how can we retain our core values in the process? Find out how to adapt yet remain resilient by learning from problem-solving facilitator and coach Yoyo Eto (BA'13, MM'14) in this insightful career webinar. Whether you're job hunting or re-evaluating your professional path, take this opportunity to discover how you can stay optimistic and dynamic amid perpetual change.

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CAMPUS SEEN

Near the Forest Sciences Centre stands a large ornamental wooden gate displaying the motto, "Our Future is Rooted in Our Traditions." There's quite a story behind it.

In 1956, after an uprising against the Soviet-influenced government was forcibly quelled, 200,000 Hungarians fled their country. Among those seeking refuge were 200 students and faculty from the University of Sopron's Faculty of Forestry. UBC's forestry faculty offered to "adopt" the school and support its students until they graduated. Over 80 per cent of them opted to stay in Canada, addressing the shortage of skilled foresters in the country and introducing some valuable European practices.

The Sopron Gate was crafted by Les Jozsa (BFA'61) and gifted in 2001 by Sopron alumni. It reflects the resilience of those who found refuge at UBC and the impact of extending a welcome to those in need. ~ Evan Rees-Wiedemann



IN MEMORIAM

Obituaries are published in full on the magazine's website at magazine.alumni.ubc.ca/in-memoriam, with listings included in our spring and fall print issues. Please submit obituaries at magazine.alumni.ubc.ca/memoriam-submissions.

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John C. Ward, BA'52
Douglas Haig Kyle, BAsc'53
Neil McQueen Standen, BAsc'62
David Kogawa, BSW'62, MSW'63
Roland Albert Montague, BAsc'63
Mark Duncan Slater, BAsc'63
David Johnson, BSc'63, MSc'67, PhD'69
Rosemary Spendlove, BA'64
Diane Malley, BSc'64, MSc'67
James (Jim) Craigen, MEd'75
Judith Thompson, MLS'81
Kersti Krug, BA'65, MBA'90, PhD'99
Roy Emanuel Erickson, BAsc'66
John McNeil, MBA'73
Richard Stevenson, MFA'84
James Edward Thornton, Professor



Charlotte Froese Fischer, BA'52, MA'54
1929 – 2024

Dr. Charlotte Froese Fischer, a pioneer in the field of computational atomic structure theory, passed away on February 8, 2024, leaving behind a legacy of scientific innovation and academic excellence. Her contributions to UBC stand as a testament to her unwavering dedication to both education and research.

Dr. Fischer's relationship with UBC began in the 1950s, when she earned her bachelor's degree in mathematics and chemistry, followed by an MA in chemistry. She then joined the faculty in 1957 as a professor in the Department of Mathematics. After completing her PhD in computer science at the University of Cambridge, she returned to help UBC establish its computer science department.

Dr. Fischer's tenure at UBC was characterized by a relentless pursuit of knowledge and a commitment to excellence. She introduced computer courses into the curriculum, recognizing the transformative potential of computational methods in scientific inquiry. Her approach laid the groundwork for future generations of students to explore the intersection of mathematics and computer science.

Beyond her innovative teaching methods, Dr. Fischer's research at UBC propelled the university to the forefront of atomic structure theory. Her work in extending the Hartree-Fock method revolutionized the study of complex atomic systems, paving the way for ground-breaking advancements in spectroscopy, plasma physics, microelectronics, and astrophysics.

Having immigrated from Ukraine at the height of the Soviet Union, Dr. Fischer remained deeply grateful for the opportunities afforded to her by Canada and UBC. Her appreciation for education and her advocacy for scientific inquiry served as an inspiration to all who had the privilege of knowing her. Her memory at UBC will continue thanks to two endowment funds she created that will continue to support students and research.

As we bid farewell to a true trailblazer, let us remember Dr. Charlotte Froese Fischer not only for her achievements but also for her unwavering dedication to the pursuit of knowledge.

Paul Thiele, BA'65, LLD'21

Paul Thiele passed on December 11, 2023, just one day after the death of his dear wife of 12 years, Cheryl (Stewart). Paul was born on March 10, 1942, in Lodz, Poland, and his family fled the country for Germany following WWII. Shortly after the death of Paul's father in 1954, Paul and his mother came to Canada to join his older brother, Gus. Paul suffered many losses throughout his life: his brother Gus in 1965 and his mother in 1966, his first wife Judy (Ewert) in 1993, his in-laws and surrogate parents, Sue and Ed Ewert, and his



second partner, Theresa Andrews. Paul's sister-in-law, Bonnie Thiele, and his great friend, the late Tom Teranishi, supported him throughout these losses.

Paul was diagnosed with congenital cataracts as an infant that left him with 10 per cent vision. Despite this, Paul completed a BA at UBC and then pursued an MA. At UBC, he met Judy Ewert (BA, BLS), a blind library science student who became his devoted partner in life and work. They married in 1968.

At this time, there were very few resources available to students who were blind or partially sighted. While pursuing his MA, Paul was asked to head up the newly created Charles Crane Memorial Library, which he tackled with dedication. Judy was Crane's co-founder and head librarian, and much of the work they did there was pioneering.

Always a strong advocate for the rights of the visually impaired, particularly with respect to access to education, Paul served as a consultant on many advisory boards and was well known within the visually impaired community. His pioneering work at the Crane Library and dedication to students were recognized with the conferring of an Honorary Doctor of Laws by UBC in 2021.

Paul is mourned by his many friends and former colleagues, sister-in-law Bonnie Thiele, nieces Ursula Schmelcher and Angela Thiele, nephew Geoff Thiele, seven great-nieces and nephews, and a growing number of great-greats.

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THE LAST WORD



Cole Walliser BA'05

Godfather of the GlamBOT

WHAT WAS YOUR NICKNAME AT SCHOOL?

People called me Coleone (a play on Don Corleone of *The Godfather*) and it stuck. At UBC, my b-boy dance name and my DJ name were both Coleone.

WHAT WAS THE LAST THING YOU READ?

A Wikipedia article on the millennial pause. (I got accused of doing a millennial pause, and I had to know what it was.)

WHAT IS THE MOST IMPORTANT LESSON YOU EVER LEARNED?

To work hard and be nice.

KNOWN FOR

As the inventor and operator of the GlamBOT camera, Walliser is known for his high-speed videos of celebrities, which he posts to an audience of more than 12 million followers on TikTok and 4 million on Instagram. Walliser and his GlamBOT, which shoots 1,000 frames a second, can be found at all the major shows, including the Academy Awards, Emmys, Grammys, and Golden Globes.

UBC CONNECTION

Walliser graduated from UBC with a BA in Psychology in 2005. He also taught at Dance Horizons, a non-profit students' dance organization based at UBC.

FUN FACT

Walliser's interest in filming began by making skateboarding videos in Richmond at the age of 14. Since then, he has directed music videos for artists such as Miley Cyrus, P!nk, and Katy Perry.

Read more *The Last Word* interviews at magazine.alumni.ubc.ca/departments/last-word

WHAT IS YOUR IDEA OF THE PERFECT DAY?

Start with coffee, go for a good little surf, have good conversations with friends and a day filled with laughter.

WHAT IS YOUR MOST PRIZED POSSESSION?

A gold bracelet I got when I was 17. It's broken, and I keep it in a little jewellery box.

WHAT ITEM HAVE YOU OWNED FOR THE LONGEST TIME?

Does my birth certificate count?

WHOM DO YOU MOST ADMIRE (LIVING OR DEAD) AND WHY?

Taika Waititi, because he's an amazing writer, director, and performer. He is my inspo.

WHAT WOULD YOU LIKE YOUR EPITAPH TO SAY?

"He tried," because I did.

IF YOU COULD INVENT SOMETHING, WHAT WOULD IT BE?

A hamper that also washes your clothes: Take off your shirt, throw it in the hamper, and then it comes out at the bottom all clean. That would solve my life's greatest pains.

IN WHICH ERA WOULD YOU MOST LIKE TO HAVE LIVED, AND WHY?

I think that this is a really good era – like the dawn of the digital age. It's as if simulation theory is a real thing, we are living in a futuristic computer world, and I've come back to see where it all started.

WHAT IS YOUR LATEST PURCHASE?

A hand-held microphone for man-on-the-street interviews that I probably will never do.

WHAT IS YOUR PET PEEVE?

People who do not reply-all.

WHAT IS THE SECRET TO A GOOD LIFE?

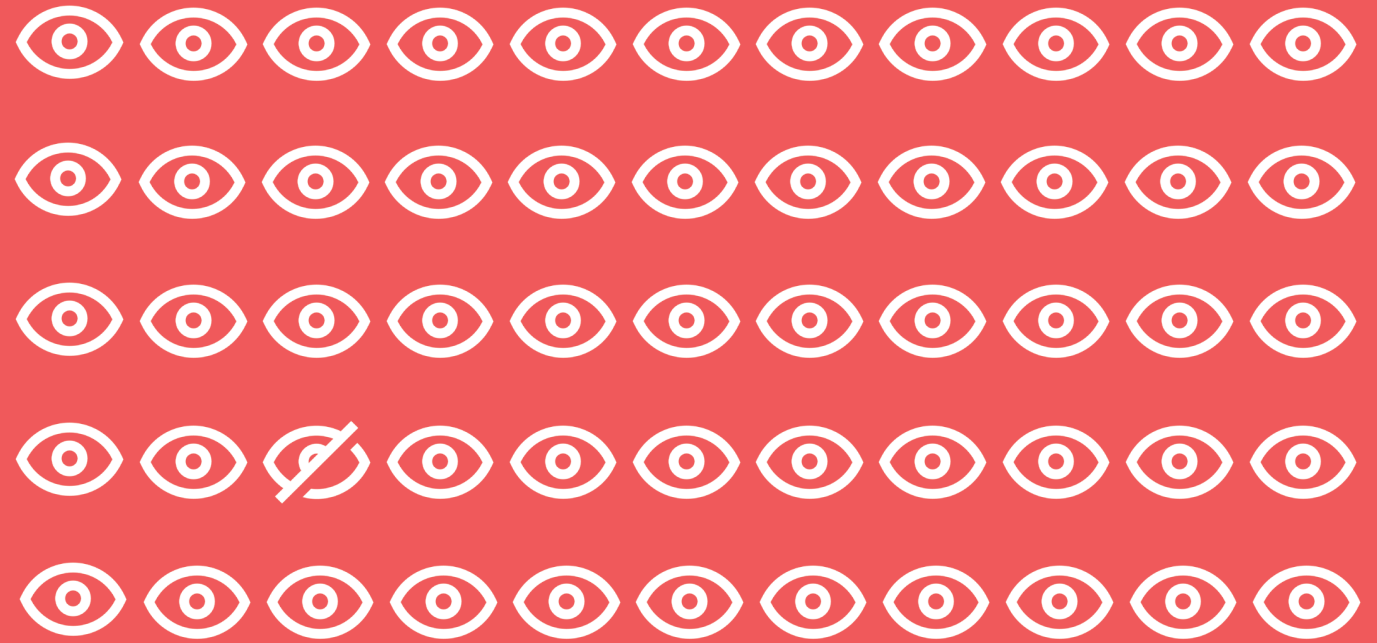
I think you need to be both happy and sad. A good life is one that is full of both.

DO YOU HAVE A PERSONAL MOTTO?

"We out here," because we are.

WHAT ARE YOUR UBC HIGHLIGHTS?

Sleeping in the Aquatic Centre and DJing on Wednesday nights at the Pit. If I could go back to any era, actually, it would be those years DJing at the Pit Pub. My friend I DJed with lives out here in California, and whenever we go out and hear a song from that era, we yell out to each other: "WHAT'S GOOD? PIT PUB!"



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