Western Alumni Magazine

Spring/Summer 2026

Sound on.

Western

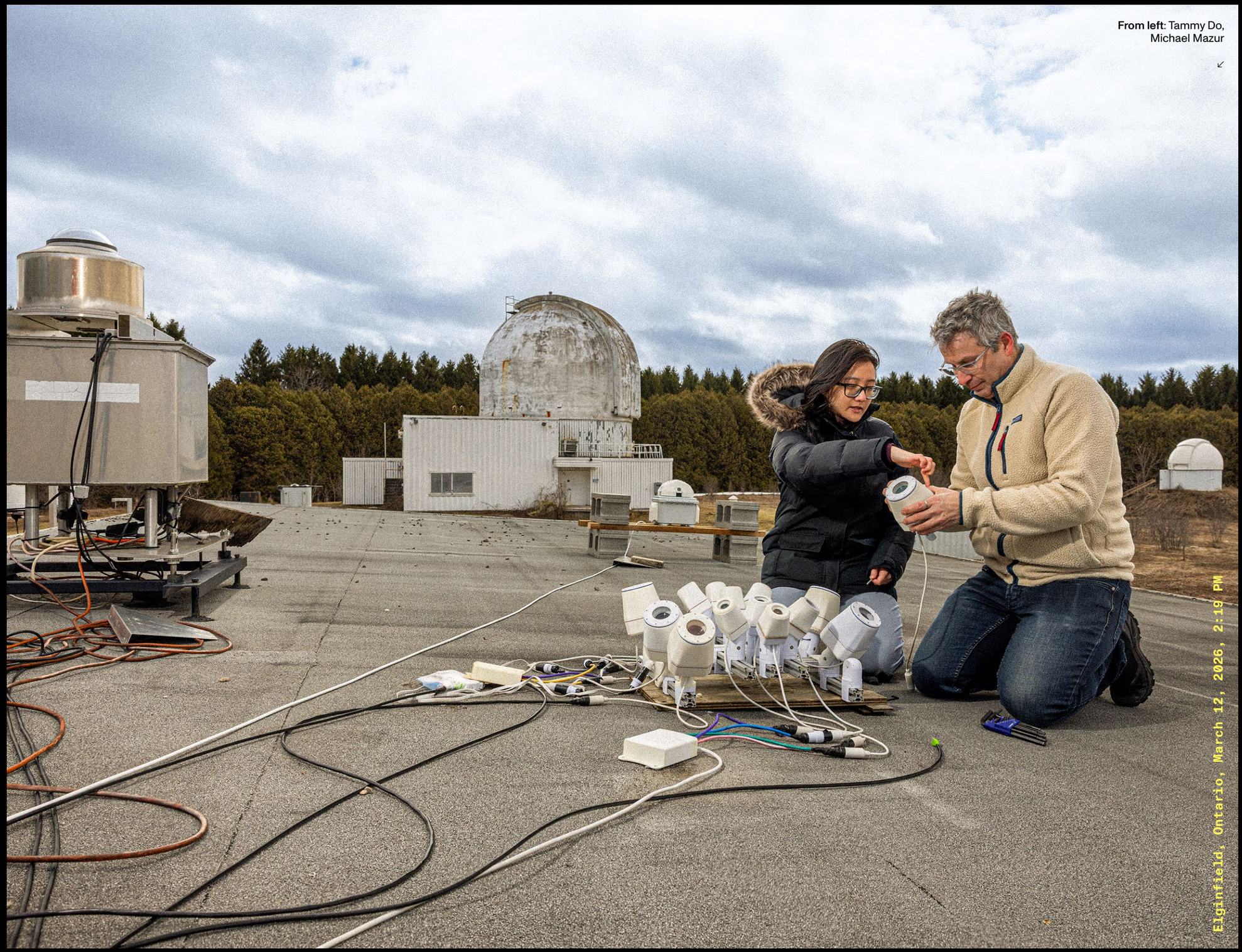
Story by Jeff Renaud
Photo by Steven Anderson

At Elginfield Observatory, just north of London, Ont., the work looks almost deceptively simple: a collection of cameras, some cables and the sky—albeit cloudy on this particular day. But in the hands of researchers like technical specialist Michael Mazur and PhD candidate Tammy Do, the modest setup becomes part of a national effort to understand what's happening far above it.

Originally built to track meteors, these 3D-printed, wide-field cameras (part of a nationwide network) are now pulling double duty, quietly logging the steady flow of satellites crossing Canadian skies. What appears as faint streaks of light are, in fact, data points feeding a growing, made-in-Canada system designed to monitor space in real time. Across the country, the network has already recorded hundreds of millions of observations, capturing the movement of more than 17,000 objects in low Earth orbit.

From southern Ontario to the High Arctic, the initiative—a collaboration between Western and Defence Research and Development Canada—offers something rare: a continuous, sovereign view of space above Canada. In places like Eureka, Nunavut, these cameras can detect orbital 'choke points'—invisible to most of the world but critical corridors where satellites cluster and the risk of collisions rises. "It's exciting to be part of something that's happening in real time," says Do, an astronomy graduate student from Vancouver, B.C. "You're working on a system that's not just observing space but helping Canada navigate it and keep us all safe."

Back on Earth at Elginfield, atop the roof of one of the service buildings, that urgency translates into hands-on work like fine-tuning instruments, checking alignments and watching the sky. It's a reminder that even in an era of global networks and space surveillance, science still begins with people, cameras and a clear night. ●



From left: Tammy Do, Michael Mazur ↙

ILLUSTRATION BY RAY DAK LAM

The long game

There's no doubt the world feels unpredictable right now.

Economic, geopolitical and technological shifts are accelerating and Canada faces challenges that call for a bold response.

In moments like these, people look for certainty, stability and solutions.

Enter universities.

They are able to turn innovative ideas into action. Think how quickly scientists mobilized during the pandemic.

Or how, at Western, we're repurposing meteor-tracking technology to monitor satellites in the Arctic—with a big impact to Canada's sovereignty, as well as global security.

But universities are also expert at the long game. Pursuing work that unfolds over years, building partnerships and addressing issues that don't have quick fixes.

At Western, that includes improving access to health care around the world through the Frugal Biomedical Innovations Program and shaping the future of hearing health at the National Centre for Audiology—stories you'll read in this issue.

In a world where things are changing quickly, you need to choose what to keep, what to transform and which new ideas will carry us forward.

Canada's universities provide a rich environment to do that. To think strategically and plan thoughtfully about where the nation is going and what it needs.

That brings us to the other major play in the long game: talent.

Universities are graduating leaders equipped for a 40- or 50-year work life. They may have multiple careers, work in jobs we haven't even thought of yet or move around the world.

It's impossible to prepare them for every twist and turn, especially with rapidly changing technology.

But a university education equips them with fundamental knowledge and skills. Gives them resilience, confidence, respect for democracy—and ideally cultivates a sense of humanity along the way.

That's one of the reasons Western offers every undergraduate experiential learning opportunities, through research, internships, study abroad, entrepreneurship and more.

These extraordinary experiences help students hone creative and critical thinking skills and better prepare them to deal with unpredictability. It's where they build the adaptability, perspective and human sensibility that will serve them well in their careers.

The world's unpredictability is not going to subside.

By staying ahead of change and nurturing great talent, universities are not only helping Canada meet the challenges at hand, we're shaping the future that lies ahead.

Alan Shepard
President & Vice-Chancellor

Western Alumni Magazine

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Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

This land continues to be home to diverse Indigenous Peoples (First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society. Their distinct rights are an important part of our institutional responsibility to reconciliation, and they are essential partners as we continue our commitment to increasing Indigenous voices and presence across all levels of community life, work, study and research.

↑

Western has partnered with Kettle and Stony Point First Nation to return culturally and spiritually sacred Nimkii Waawaanag (Thunderbird eggs) to their original community, reflecting the university's commitment to reconciliation. Also called "kettles" for their resemblance to cooking pots, these 350-million-year-old rock formations are tied to spiritual beings that bring healing rains and feature prominently in Anishinaabe creation stories. On Nov. 4, 2025, multiple kettles were carefully returned to Kettle Point in a collaborative effort with Elders, knowledge keepers and Western faculty and staff.

PHOTO BY DOUGLAS TULETT/OFFICE OF INDIGENOUS INITIATIVES.

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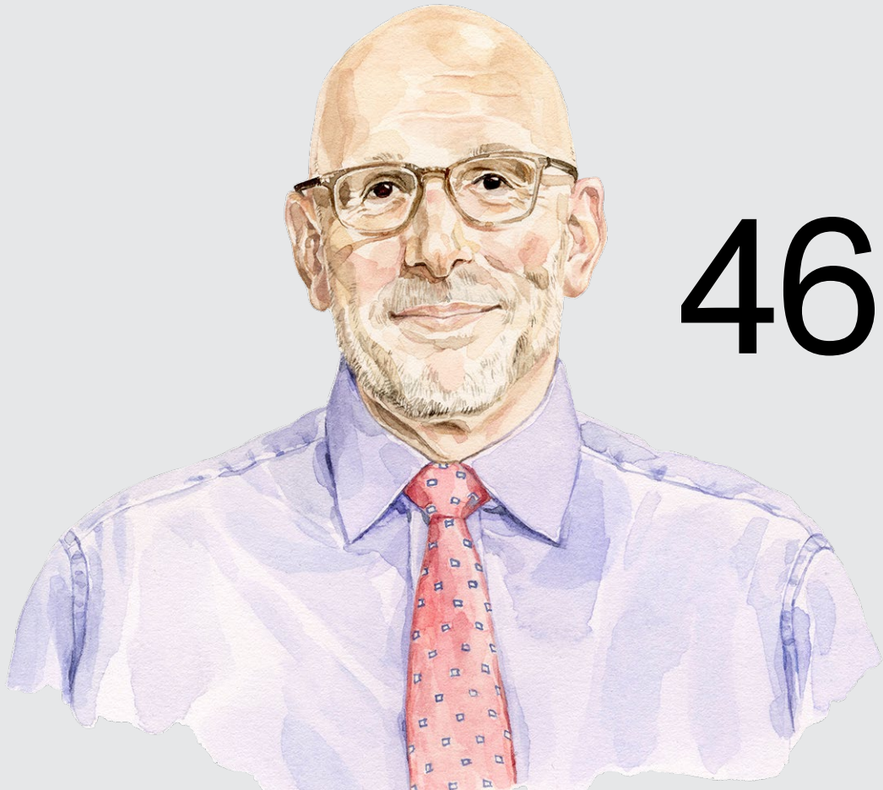

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IN EVERY ISSUE

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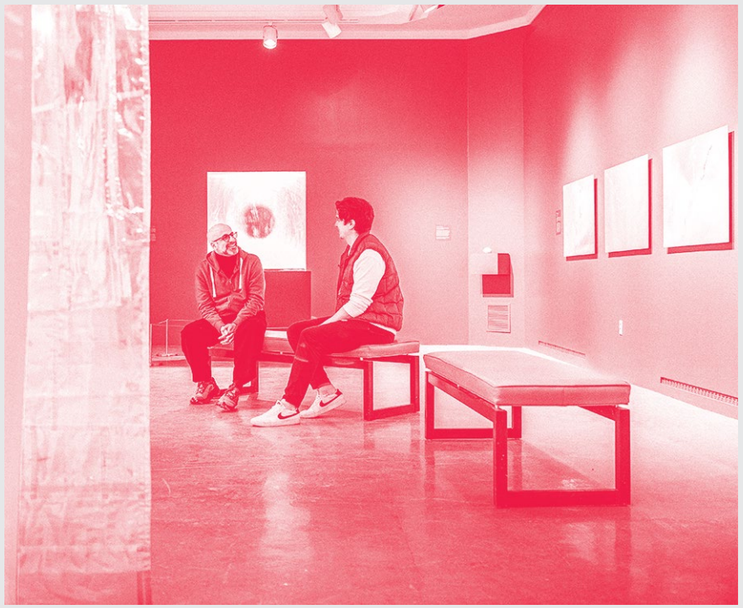


↗ Machina ex deus

20

↖ Peter Howitt

PHOTO BY RYAN ROBINSON / WESTERN MUSTANGS

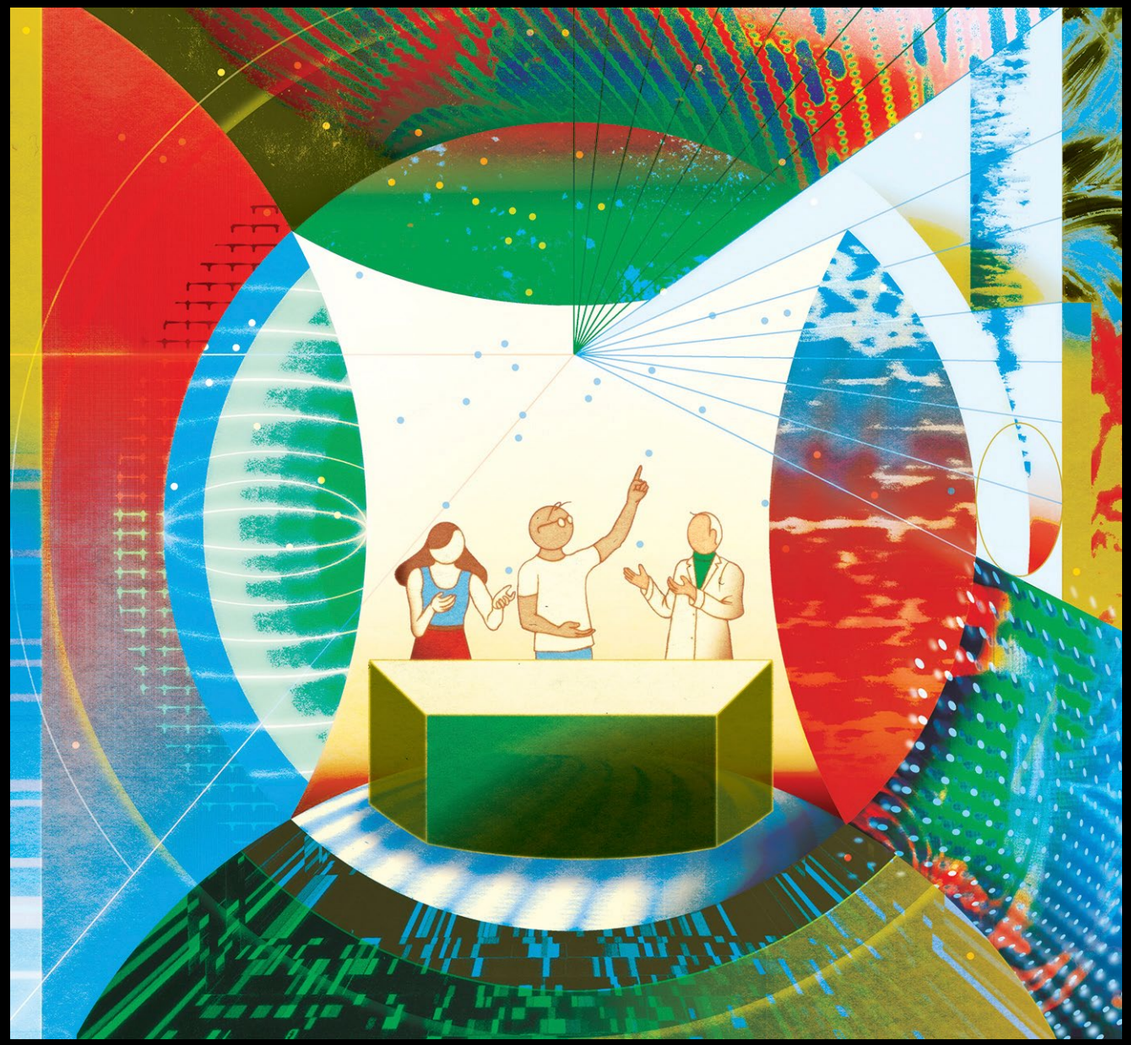
↖ **From left:**
Michael Faulds
and Greg Marshall

Mustangs football welcomes new head coach

The Western Mustangs have entered a new era with the appointment of Michael Faulds as the program's eighth head coach in nearly a century of football. A quarterback from 2005 to 2009, Faulds led the Mustangs to two Yates Cup championships while playing under head coach Greg Marshall.

After 13 seasons at the helm of the Wilfrid Laurier Golden Hawks, Faulds has returned to his alma mater to take over from Marshall, who retired after 18 years leading the Mustangs. During his tenure, Marshall guided Western to nine Yates Cup titles and two Vanier Cup championships, cementing his place as one of the most decorated and longest-serving coaches in team history. ●

More on these stories:
magazine.westernu.ca



Joining the global fight against viruses

Illustration by Dalbert B. Vilarino

Western has become the first Canadian institution to join the Global Virus Network (GVN), positioning the university as a national hub for global pandemic preparedness and accelerating research, real-world testing and the development of vaccines and treatments to combat emerging viral threats.

The $44-million Pathogen Research Centre, under construction at Western Research Parks, will serve as one of the GVN's Centres of Excellence, bringing together transmission studies, advanced containment labs and medical treatment manufacturing under one roof.

The GVN is a non-profit organization that shares science-based information about diseases such as HIV, respiratory viruses and dengue fever. It helps communities and global health leaders prepare for outbreaks, epidemics and pandemics, while supporting vital research and training. ●

/ WESTERN UNIVERSITY / NASA / ESA / CSA K. BEECROFT, J. CAMI, E. PEETERS, D. VAN DE PUTTE, S. VAN SCHUYLENBERGH, M. GIESE, C. BHATT /

Cosmic chemistry

Fifteen years after Western astronomers first discovered “buckyballs” in space—soccer ball-shaped molecules that resemble a hollow dome—they’re back with stunning images built using the James Webb Space Telescope (JWST).

A team led by physics and astronomy professor Jan Cami first documented buckyballs using NASA’s Spitzer Space Telescope in 2010. The fantastic find came in the planetary nebula Tc 1, about 10,000 light-years away.

These molecules, which contain 60 perfectly arranged carbon atoms, were first synthesized in 1985 at the University of Sussex by Sir Harry Kroto and his colleagues—a breakthrough that earned the 1996 Nobel Prize in Chemistry.

Now the Western team has returned to Tc 1, this time armed with the JWST—the most powerful space telescope ever built. The new image reveals shimmering shells of gas across the frame (hotter gas glowing blue, cooler material traced in red).

“It shows we had only scratched the surface,” says Cami, principal investigator of the new JWST General Observer program. “The structures we’re seeing now are breathtaking and they raise as many questions as they answer.”

Discovering buckyballs in space helps scientists track carbon chemistry, explain mysterious signals and understand how organic materials change in extreme environments. Their discovery has also challenged traditional views about space chemistry and offered clues about how life may have begun. ●

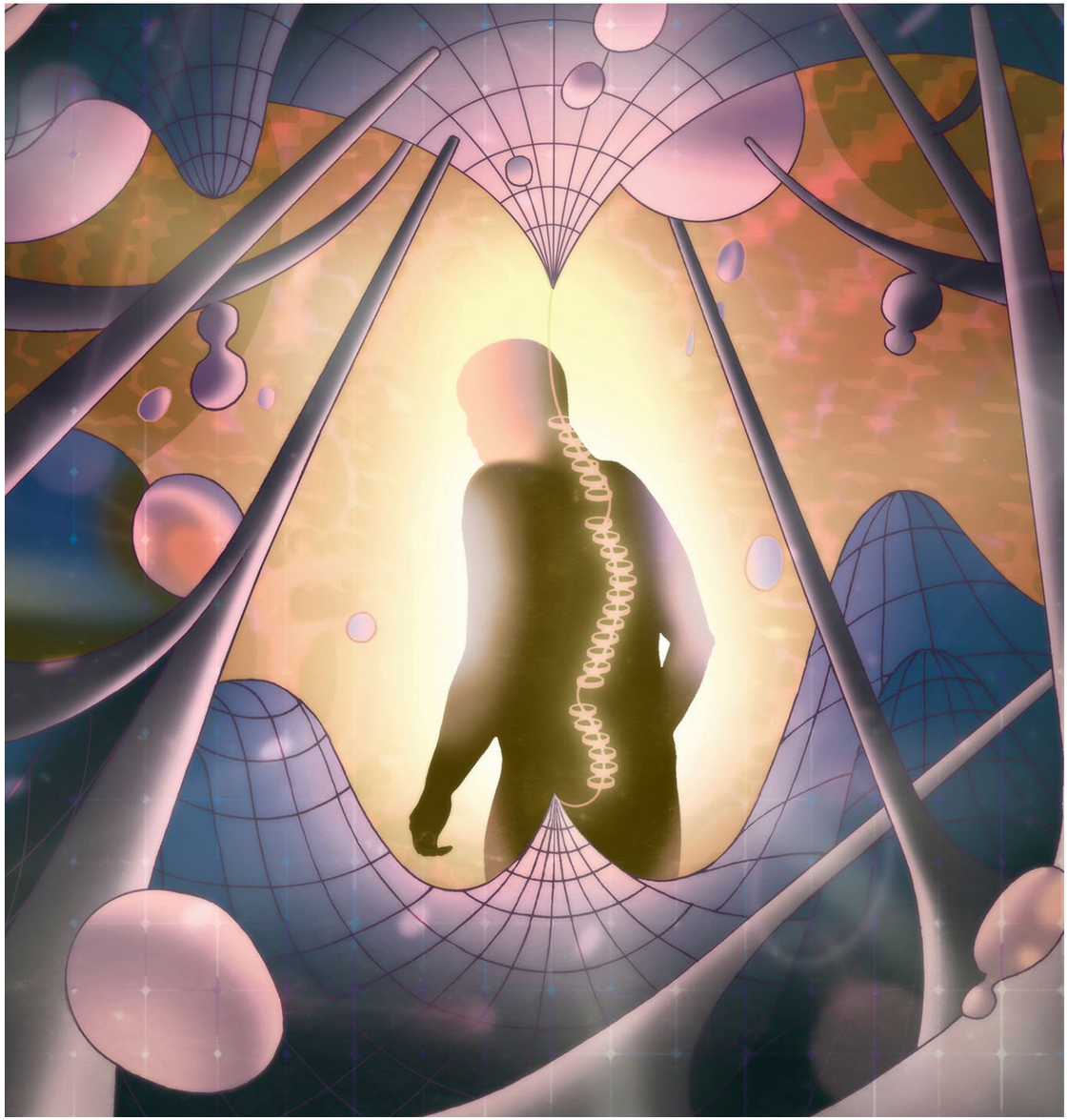
A partnership advances Canadian defence innovation

Illustration by Carrie Jia

Western is partnering with the world’s largest non-nuclear submarine builder to advance defence research and strengthen Canadian sovereignty.

In January, the university signed a memorandum of understanding with TKMS to collaborate with international and private-sector partners on made-in-Canada solutions. Western is a core academic partner, along with Dalhousie University and the University of British Columbia, in TKMS’s new Canadian Defence and Dual-Use Innovation Ecosystem.

The initiative connects universities, Indigenous businesses and industry partners in Canada, Germany and Norway. It aims to turn advanced research into deployable defence technology and civilian applications. ●



Researchers explore new approaches to chronic back pain

Illustration by Dalbert B. Vilarino

Researchers at Western's Bone and Joint Institute are developing innovative ways to repair damaged spinal discs and help people with chronic back pain, one of Canada's most common and costly health problems. The interdisciplinary team, co-led by professors Cheryle Séguin and Lauren Flynn, is using stem cells and custom biomaterials in early lab studies to restore disc function rather than focusing on symptom management. Collaborators from McGill, Cedars-Sinai and Sunnybrook will test and validate the innovations. This research will improve the mobility and quality of life for millions of people living with long-term back pain. ●

PHOTO BY STEVEN ANDERSON

Western unveils sustainability strategy, named one of Canada's Greenest Employers

Western has launched a new Climate and Sustainability Strategy, moving beyond energy savings and resource protection to focus on restoring and renewing the campus environment while supporting planetary health.

Already ranked among the top one per cent of universities worldwide for sustainability, Western offers more than 2,700 courses linked to the United Nations Sustainable Development Goals. Hands-on programs like Campus as a Living Lab give students and staff opportunities to engage in sustainability. Investments in low-carbon infrastructure, such as new electric boilers and initiatives like energy retrofits are helping to reduce emissions, strengthen campus ecosystems and decarbonize operations.

In April, Mediacorp Canada Inc. named Western one of Canada's Greenest Employers, a national designation that recognizes efforts to embed sustainability into everyday operations and involve employees in reducing environmental impact. Western, the only London, Ont., organization to make the annual list, was selected because of its low-carbon campus, real-time energy monitoring and unique efforts like the community garden and Free Store. ●

ICON BY SOFTSCAPE FROM NOUN PROJECT

(IN)DETAIL

Sustainability at Western by the numbers

2025–26

14
LEED-certified buildings
(Leadership in Energy and Environmental Design)

32%
greenhouse gas emissions reduction (2005-2024)

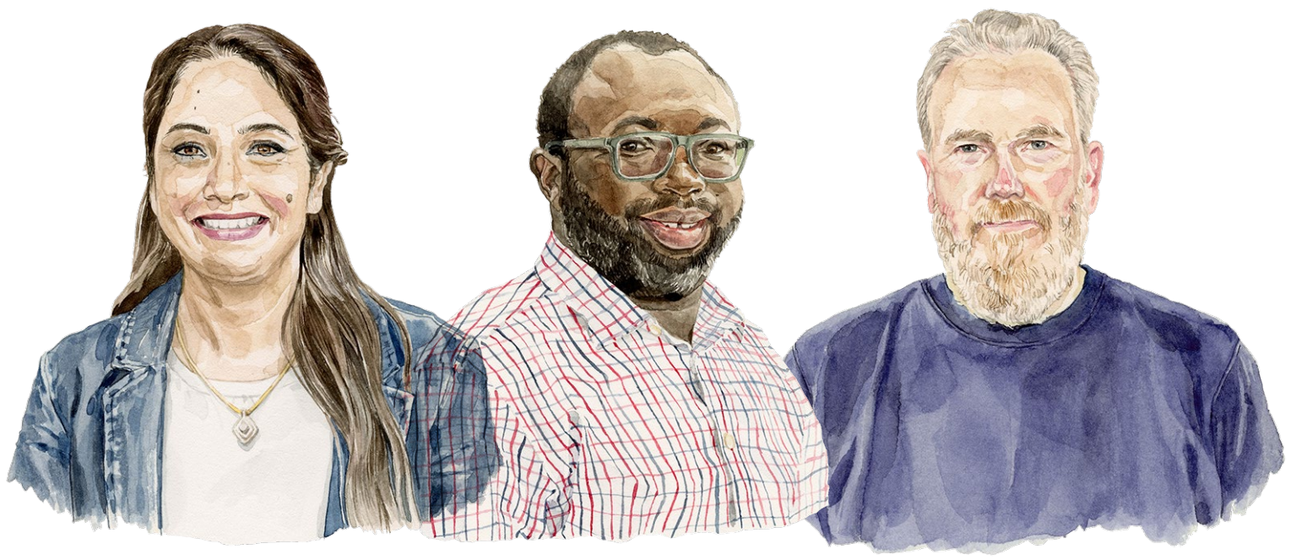
1,900+
research projects tied to UN's 17 Sustainable Development Goals

2,700+
sustainability courses

41%
waste diverted from landfill (2025)

33
student groups advancing sustainability

Western professors are putting artificial intelligence to work in the classroom, helping students use it in practical, creative ways. Through the Centre for Teaching and Learning's Generative AI Teaching Fellowship, three inaugural fellows are experimenting with new approaches and sharing what they learn with colleagues across campus.



Guneet Kaur Nagpal
Ivey Business School

WHAT'S YOUR PROJECT?
I developed a marketing strategy simulation called plAIbook, designed to help students learn to question and analyze the results they get from AI. Students act as the CEO and use structured prompts, constraints and verification checkpoints to turn GenAI into a research assistant that helps inform their marketing plans. The goal is to harness the power of AI while retaining ownership of business decisions.

HOW CAN AI CHANGE LEARNING?
AI lets students focus on *how* to think, not just what answer to produce. Working through a GenAI simulation, students can practice thinking like marketers—framing problems, testing assumptions and making trade-offs—rather than just coming up with perfect answers. I'm passionate about using AI in teaching, but I'm open about its pitfalls: confident-sounding buzzwords, hallucinations and the trap of mistaking polish for insight.

WHAT SKILLS DO YOU TEACH STUDENTS?
I want students to deepen the human skills that AI can't replace: problem framing, judgment amid uncertainty and disciplined thinking. They should learn to separate evidence from assumptions, ask sharper questions and verify information.

Andrews Tawiah
Physical therapy

WHAT'S YOUR PROJECT?
Our team is developing an AI learning platform where physiotherapy students can practice dealing with different patient examples they may encounter in clinical work and rare health scenarios they wouldn't necessarily see in a placement. This platform will complement how we teach clinical reasoning in the classroom, guiding students through cases rather than supplying answers.

WHAT HAVE YOU DISCOVERED SO FAR?
AI is becoming part of health care. We want students to know where AI can help and where it shouldn't be relied on. To prepare future health professionals, we want to create a platform that acts as a collaborative partner so students can get instant feedback, tackle complex problems together and feel empowered to take charge of their own learning.

HOW ARE YOU ENHANCING LEARNING?
The unique part about the tool we're building is that it's adaptive. It starts at a baseline level of difficulty in physiotherapy scenarios and increases in complexity as students perform well, strengthening their reasoning skills. If they struggle, the model provides more scaffolding to help them learn.

Bill Turkel
History

WHAT'S YOUR PROJECT?
I'm developing hands-on teaching modules that use real-world circumstances, such as historical and international relations case studies, to help students and AI work together effectively as a team. This work will help students develop hypotheses, challenge the evidence they've extracted and test their reasoning skills.

WHAT ARE YOU HOPING TO ACCOMPLISH?
AI is changing so rapidly that new possibilities are available every week. I want to prepare our graduates for a future where they'll work alongside AI in almost every professional field. The goal is to help them learn to solve complex problems that neither a human nor AI could easily handle alone.

WHAT ARE YOU MOST EXCITED ABOUT?
AI has the potential to act as a digital teammate that helps us slow down our thinking and spot hidden biases. I'm focused on how we can use it to help people learn more effectively and quickly. It's a powerful tool for navigating an information-heavy world, helping students uncover things they didn't even know they were missing while sharpening their ability to evaluate evidence. ●

ILLUSTRATIONS BY MELINDA JOSIE

Dual-use technology

Dual (adjective) consisting of two parts, elements or aspects.

Use (verb) take, hold or deploy as a means of accomplishing or achieving something; employ.

Technology (noun) the application of scientific knowledge for practical purposes.

Dual-use technologies are tools and materials designed for everyday use that can also be used to keep Canada safe. As geopolitical tensions intensify, the term is appearing more frequently in news and policy discussions. In Canada, that focus has sharpened with the federal government's new Defence Industrial Strategy, which aims to reinforce national security while accelerating domestic innovation and manufacturing.

From automated systems and smart sensors to advanced materials and artificial intelligence, dual-use technologies improve how we work, travel and communicate while supporting Canada's security and resilience.

At Western, researchers are developing technologies suited to Canada's vast geography, extreme weather and hard-to-reach regions. Teams are creating digital models to test systems before they are built. They are combining information from different sensors to provide clearer, faster insights. They are designing tools to operate in places that cannot be reached easily or safely.

Because of these strengths, Western is a core academic partner in TKMS's Canadian Defence and Dual-Use Innovation Ecosystem (learn more on page 13). Working with other Canadian universities, industry partners and international collaborators, Western is turning advanced research into practical technologies to support both civilian and security needs.

A camera system originally developed by researchers at Western's Institute for Earth and Space Exploration to track meteors (featured on page 2) is just one example. The system now monitors satellites and other objects moving over Canada, recording more than 17,000 objects in its first year of continuous operation. In partnership with Defence Research and Development Canada, the system was expanded to four sites across the country, including in the High Arctic, to give a clearer picture of activity in Canadian airspace.

As conversations about sovereignty, infrastructure and security grow more urgent, dual-use technologies show how closely university research connects to public priorities. They also reflect the role universities play in tackling complex challenges thoughtfully and building solutions that serve Canadians now and in the future. ● **Penny Pexman**

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Penny Pexman is Western's Vice-President (Research) and a professor of psychology. A Western graduate (BA'92, MA'93, PhD'98), she is an internationally recognized cognitive psychologist whose research focuses on how people understand meaning in language and how that changes through experience or brain injury. She is a fellow of the Canadian Psychological Association and the Association for Psychological Science, and co-founder of Women in Cognitive Science Canada. She has held leadership roles with national funding agencies and academic organizations and has received multiple awards for teaching and mentorship.

From written off to a life rewritten

I was sitting in my basement on a Zoom call, at the height of the pandemic, while my young family waited upstairs for the verdict. In that moment, I became a newly minted PhD in health and rehabilitation sciences. It was a milestone that was never supposed to be a part of my life story. It was the moment I realized I had finally rewritten my future. Earning a PhD at Western granted me access to a life I once thought was out of reach. There I was: "Dr. Collins from now on."

Story by Eric Collins
Photo by Frank Neufeld

I am a second-generation Canadian on my mother's side, the youngest child of working-class parents in an industrial city defined by its social and economic challenges during the 80s and 90s. Raised in the inner city, I was immersed in an environment where chronic substance use, financial hardship and fractured homes were the baseline reality for many families.

"Your son will never go to university," my Grade 8 teacher told my mother. He shamed me for my stature and behaviour. "You will never grow in height and maturity," he said in front of my classmates. I was the small kid, defined by what I couldn't be: as big as most of my peers, tough enough to stop the bullying or smart enough to succeed academically. The criticisms and rejections were stinging confirmations of what others thought about me. I entered high school carrying an old duffle bag and wearing hand-me-downs, with no proof of academic excellence. But I knew deep down I had the potential to excel at something one day.

By my teens, the competitive sports I played as a child were replaced by a "party culture" spiral. I lived entirely in the moment because, in that world, there was no plan for the future. I never imagined I'd live long enough to see my 40s. I grew increasingly distant from my family, leaning into "the boys," a gritty group of teenagers that prioritized getting high and escaping reality. Drugs weren't just a feature of my adolescence; they were the fabric of my existence.

I didn't have the opportunity to talk to a mental health professional about my emotional pain. I had no healthy coping strategies. Instead, I turned to cannabis and the brotherhood of the boys for my escape. But my life changed when I was introduced to a more powerful substance, cocaine. My future was in jeopardy.

Jails, institutions or death. In the backdrop of my adolescence, those weren't just possibilities; they were the most likely outcomes. Eventually, they came calling for some of my peers. I began to witness the tragic consequences of our patterns. At the same time, I began to feel an internal spark that eventually helped me overcome the odds. That spark ignited a flame that grew slowly during years of hard labour and self-discovery.

"There's got to be a better life than this," my boss would tell me every morning as we drove to construction sites. I had so many unanswered questions about life, society, psychology and philosophy. I couldn't find answers in the environments I found myself in, so I looked for an exit ramp—and that was the world of higher education.

My mom suggested I become a teacher, so I earned the prerequisites and received a conditional acceptance into the concurrent education program at Ontario Tech University. But a week before school began, I panicked. I wasn't confident I'd succeed in that program or have my unanswered questions addressed, so I sought out an academic advisor to explore other options. She asked me what I was interested in learning. At that time, I was fascinated with illness and disease because of my love for the medical TV drama *House*. Based on that, and my academic eligibility, she gave me two options: criminology or health sciences. I chose the latter.

It turned out to be one of the best decisions I've ever made.

Higher education gave me purpose. For the first time, I was rewarded for my intelligence and dedication to learning, a stark departure from the life I had known. For me, higher education and recovery are inseparable. The academic environment provided me with scientific theories, concepts and research findings to address my unanswered questions. It also provided me with healthy social circles and a structural safety net that helped me grow. I pursued my master's and PhD at Western, with a deep desire to understand the various factors that push youth towards drugs. Exploring these factors forced me to investigate their influence on my own life. I didn't tip-toe, I jumped in with both feet, eventually sharing my lived experiences through my dissertation, *Cocaine Confessions*. The self-reflection offered a deeper understanding of my past behaviours and the weight of their consequences. By writing my story, I was able to reconcile my past and use my "inside-out" perspective to address the stigma and shame that so often surrounds addiction. I wanted to show that recovery and growth are possible, even for those who've been counted out.

Today, as an assistant professor in the School of Health Studies at Western, I don't just teach theory; I teach the human architecture of resilience. From mental health to stress to drug policy, the lessons I teach aren't simply grounded in textbook knowledge; they're shaped by the reality of my own life. I can lecture about the weight of depression, anxiety and the grip of addiction with authenticity only lived experience can provide. I see the impact when students approach me after class to share how my stories resonated with them, touched their own lives and brought a new perspective to their challenges. Knowing I'm making a difference by showing up authentically has been the most meaningful reward of my career.

I recognize now my trajectory was not fueled by individual grit alone. Stable housing, support from friends, family and mentors and educational grants allowed me to pursue higher education with confidence, security and safety. Those same anchors were denied to so many of my peers.

My story shows that potential is often waiting, untapped, and that recovery and growth are possible. I hold my "Dr. Collins from now on" experience close to my heart because it's a striking reminder of how far I've come. I had the support to build a positive legacy out of the wreckage of my past—and now it's my turn to pay that forward. ●

↗

Eric Collins, MSc'14, PhD'21, is an assistant professor of health studies who had an unexpected journey to academia. Higher education was a key part of his recovery from substance use and inspired a deep love of teaching.

PHOTO BY CLÉMENT MORIN / ©NOBEL PRIZE OUTREACH

The interview: Peter Howitt

A Nobel laureate reflects on economics, artificial intelligence and launching his career at Western. The alum and long-serving Western professor called it the ‘perfect place to grow up as an economist.’

Interview by Megan Stacey
Photos by Clément Morin and Frank Neufeld

Nobel Prize-winning economist Peter Howitt, MA’69, is determined not to let the honour change him.

Though he was surprised by the win—the Western graduate and longtime economics professor didn’t even have his cellphone turned on when the first call came in—Howitt says he’s made a concerted effort to enjoy the experience while staying grounded.

He was among a trio honoured with the 2025 Nobel Prize in Economics for explaining and advancing innovation-driven economic growth. The theme is just as relevant today as it was in 1992, when Howitt and collaborator Philippe Aghion published the paper that eventually earned them both one of the world’s most prestigious awards alongside economist Joel Mokyr.

At Western, where Howitt was a faculty member for almost 25 years, he taught generations of future economists, including Tiff Macklem, MA’84, PhD’89 and Stephen Poloz, MA’79, PhD’82, LLD’19, both of whom went on to serve as governors of the Bank of Canada.

Western Alumni Magazine senior editor Megan Stacey spoke to Howitt, now retired and living in North Carolina, about the economic theory that defined his career, forces reshaping the global economy and his view on the role of higher education.

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Left: Economic sciences laureate Peter Howitt is greeted by Hanna Stjärne, executive director of the Nobel Foundation, as he arrives at the Nobel Prize Museum in Stockholm on Dec. 6, 2025.

PHOTO BY FRANK NEUFELD

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Peter Howitt, (right) returned to Western on April 20 for a fireside chat with Stephen Poloz (left), ninth governor of the Bank of Canada and one of Howitt's former students. A crowd of more than 400 gathered in the Ronald D. Schmeichel Building for Entrepreneurship and Innovation to hear Howitt's insights on topics ranging from artificial intelligence to inflation.

Howitt pointed to curiosity as one of the most critical traits students can develop. "I think the most important attitude is still curiosity, being willing to just pursue what seems to you to be an interesting question worth answering. That's always been my MO, throughout my career. It might not turn out to be something worthwhile—but if it's going to be worthwhile, it'll require a lot of hard work to make it happen. If I'm not interested in it, I'm probably not going to enjoy putting in all that work," Howitt said.

Tell me about your journey into economics. How did that interest start?

When I was in high school, I wasn't a particularly good student, but I had a part-time job with a wool broker who imported wool from around the world and sold it to textile mills in Ontario and Quebec. He took me on as an assistant, to keep his samples tidy. I was really curious about the prices of wool, around the world, going up and down. He explained supply and demand and told me if I really wanted to learn more, I should study economics. So I did.

When I finished my undergraduate degree, I had a choice to make: I had a job offer from Dominion Textiles, one of my former boss's clients and at that time one of the largest corporations in Canada. Or I could continue studying economics. I was accepted into the master's program at Western and decided what I really wanted was to be an economist.

Why is the theory of creative destruction so important, enough to drive much of your career?

As a researcher, I've always just followed my nose. This whole idea of creative destruction really sheds light on one of the most important aspects of economics—growth itself. It's the most vital subject we study, the process by which people's material well-being improves. We've made tremendous progress. The average person today is arguably better off than the richest person 200 years ago, from longevity and health to technology.

A really important aspect of technological progress is that it benefits many, but it doesn't benefit everyone. It can improve lives, but it can also destroy people's livelihoods by replacing previous technologies. There's this conflict that's always been there, between the old and the new, that's really at the heart of economic growth. How that conflict is resolved is critical for whether a country is going to succeed or stagnate.

When Philippe and I started talking, we realized we could incorporate this idea of creative destruction into a model economists could actually use to teach and measure things.

Do you see this theory everywhere? How do you relate to creative destruction in your everyday life?

As a professor who was really interested in doing research and generating new ideas, I realized there's a lot of creative destruction in academic research as well. New ideas render old ideas obsolete. It's one of the things that encouraged me to retire. I'm stepping out of the way of other people's new ideas.

How should we handle rapid change, when it feels like new technologies are moving at such an extreme pace?

There's no way to stop it. I'm not so sure about what artificial intelligence is going to bring. But you have to take heart in the fact that when a new general-purpose technology like AI comes around, it isn't the first. We've had the steam engine, electrification, the IT revolution of the 20th century. What's most apparent at first is how new technology has the potential to destroy jobs, but it always turns out to have an even bigger potential to make jobs more productive. Some people's jobs will indeed be destroyed by AI. I think, as a society, we have an obligation to try to help people with this transition, not just by providing income, but also helping to retrain. A cooperative effort between government, business and universities is needed.

What role should universities play in that trifecta, especially as higher education seems to be under threat?

Universities will always be valuable. It's that interaction between scientific curiosity and technological progress that makes the combination of businesses and academics so productive. It needs to be coordinated and financed, and the government has a role in doing that. From the first computer to groundbreaking agricultural advances, that tripartite cooperation has led to some of the biggest technological advances in modern history, and I think that's likely to be so in the future.

What drew you to Western? Tell me about your time here.

I knew getting a master's degree from Western would be to my advantage. After I earned my master's, I went to Northwestern to get my PhD, but I came back to Western as a professor just three years later, when the economics department was expanding very rapidly. It was full of young people with a tremendous interest in doing research—if they didn't, they knew this wasn't the place for them. It was a lively atmosphere dominated by people very excited by what they were doing. It was just the perfect place to grow up as an economist.

Shortly after I arrived, we hired two superstar macroeconomists who would become mentors and colleagues, David Laidler and Michael Parkin. They were full of infectious energy. David and Michael gave me and other young macroeconomists at Western a lot of encouragement, as well as very stern criticism when we didn't measure up to their high standards. I owe them a lot.

I have very happy memories of being at Western. I spent a lot of time in Weldon Library, finding copies of the latest economics journals. I would rummage through the stacks, looking for various books and reading.

Are there any memories from your time as a graduate student or professor that stand out?

I have very happy memories of being at Western. I spent a lot of time in Weldon Library, finding copies of the latest economics journals. I would rummage through the stacks, looking for various books and reading. But most of my time was spent in the Social Science Centre. I especially loved teaching the honours economics students. They were very smart and very curious, and I learned a lot from them.

You now live in the U.S., but I'm curious about your thoughts on the Canadian economy.

I think Canada is doing very well, trying to react to the new global trade environment in the most sensible way possible. Economic growth is very dependent, especially in a relatively small country like Canada, on open international trade; it's important to keep that going, even when your major trading partner is putting up barriers.

How do you see this next chapter unfolding?

When you win a Nobel Prize, you suddenly hear from people all over the world. There are all sorts of opportunities opening up, and there are parts of the world my wife and I would love to see. But we had a very happy life here in the hills of North Carolina—enjoying nature, hiking and playing golf—before I got this prize. I've been contacted by other Nobel laureates who kindly got in touch, not just to congratulate me but to offer advice. They all tell me this is a big dividing point in their lives. They had a life before and after the prize, and in many cases, they don't have a lot to do with each other. I enjoy my life here; I don't want to make a huge change.

I have to pinch myself, not just to realize this is actually happening, but to make sure I don't get too carried away. You could just sit back and bask in all of this. But I still get up in the morning, I still put my pants on one leg at a time. It's still me. ●

Interview has been edited for style and clarity.

Sound on.

● When Paige Stickney walked into Susan Scollie’s lab last summer, she felt like she was stepping back in time. She’d been here before. Stickney paused, recalling that 10 years prior she participated in one of Scollie’s research studies at Western’s National Centre for Audiology (NCA). ● Now she was back—as an undergraduate summer research intern at one of the leading global institutes for audiology research. “It was a big full-circle moment,” says Stickney, a fourth-year linguistics major in the Faculty of Arts and Humanities. She didn’t just return to a lab. She entered a world that had shaped her experience of sound from the very beginning. ● Stickney was one of three in every 1,000 babies born with permanent hearing loss. A lack of oxygen during delivery damaged the sensory hair cells in her cochlea—a fluid-filled, delicate structure in the inner ear. ● “My parents were terrified,” Stickney says. ● Everything had happened so fast. A rush to the operating room, an emergency C-section. And then news their baby needed a hearing test. ● “My mom doesn’t remember a lot, but it was traumatic.” Stickney was immediately referred to the H.A. Leeper Speech and Hearing Clinic at Western, which offers evidence-based speech, language and audiology services to London, Ont., and surrounding areas. The clinic is the training site for master’s students in speech language pathology and audiology, both offered through the School of Communication Sciences and Disorders in the Faculty of Health Sciences, which also houses the NCA.

PHOTO BY FRANK NEUFELD

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Left: Early intervention and lived experience is shaping the life of student Paige Stickney.

Story by Keri Ferguson
Photos by Frank Neufeld, Nicole Osborne, Steven Anderson and Jon Munn

Sound on.

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After a whirlwind of worry about what Paige might miss, the Leeper Clinic offered her parents a calming perspective.

"The staff were extremely sensitive," Stickney says. "They told my mom I wouldn't miss what I wasn't hearing, because I was born this way."

From the comfort of a parent's voice to the chatter of family and friends, access to language connects us to the people and the world around us—and plays a critical role in how we communicate, think and develop.

For millions, deafness and hearing loss are part of that connection. According to the World Health Organization, over five per cent of the world's population is deaf or hard of hearing. By 2050, that number is expected to surpass 700 million—roughly one in 10 people.

For those who use spoken language, this rising prevalence of hearing loss underscores the importance of audiology research—and the ongoing work of the NCA.

For 25 years, this interdisciplinary team has advanced research in early screening programs, patient care and the evaluation of hearing technologies. Its work has also led to widely used innovations, including the world's first pediatric hearing prescription and cochlear implant programming tailored to individual anatomy.

"We have a long history of collaboration, bringing together audiologists with basic scientists and engineers to innovate and solve problems," says Scollie, Distinguished University Professor in the Faculty of Health Sciences and director of the NCA.

Communication sciences and disorders professor Sheila Moodie is one of those principal investigators. She's also the director of the Family-Centred Early Intervention Lab, one of 16 research labs within the NCA.

For families like Stickney's, learning an infant has hearing loss can be overwhelming, making empathetic care crucial in those early days, Moodie says.

"Families who've just had a baby are transitioning to their new roles as parents," she says. "When they find out their newborn has been diagnosed with hearing loss, it's normal to experience distress, uncertainty and fear."

Through her lab, Moodie's team ensures audiologists and other professionals engage caregivers in practical, supportive ways. Families are paired with trained support workers, connected to resources to navigate services and matched with peer families who understand what they're experiencing.

With the right tools and support, Moodie says the goal is "to provide knowledge and hope" so families dealing with a child's hearing loss can live as any other family would.

But early detection is key, says Marlene Bagatto, a professor in the School of Communication Sciences and Disorders and an NCA principal investigator.

"If a baby born with hearing loss is not identified early, intervention is delayed. This can affect their communication, social and cognitive development and access to education. Ultimately, it affects their ability to thrive and contribute to society."

Bagatto's research focuses on early hearing loss detection and supports for infants and young children.

Not all families are connected to specialists as early as Stickney's was. Currently, only six out of Canada's 13 provinces and territories provide comprehensive infant hearing health care. Bagatto is working to change that through evidence-based research. As a member of the Canadian Infant Hearing Task Force, she advocates to the federal government for equitable infant hearing health care across the country.

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Opposite top: Charlotte Gould (left) and audiologist Susan Scollie look at 3D-printed earmolds like the ones Gould uses with her hearing aids.

PHOTOS BY NICOLE OSBORNE

A collaborative high-tech approach to an old problem

Hearing aids give millions of children access to sound. Customized earmolds are essential to connect the technology to the ear canal and hold hearing aids in place. But children outgrow their earmolds rapidly—sometimes monthly—during their first year of life. This means repeated clinic visits for silicone impressions of their ears, an uncomfortable process.

Jennifer Gould's daughter Charlotte was diagnosed with hearing loss as a baby. The extra earmold appointments came on top of other medical visits to rule out any other underlying health issues. "The nature of the earmold process included more scheduling, waiting, poking and prodding," says Gould. An otherwise happy baby, without well-fitting earmolds, Charlotte was quicker to upset.

Waiting for new earmolds can take weeks. That poses a significant risk for infants, because their rapid growth can interrupt hearing aid use when it's most needed—during critical periods for language and development.

Alongside Western engineering professors Soodeh Nikan and Joshua Pearce, Susan Scollie, director of the National Centre for Audiology, is tackling the problem through the ALLEars project, using AI and 3D-printing to develop affordable, digital solutions for predicting ear growth.

"We're bringing a completely fresh and high-tech approach to an old problem: kids outgrowing their earmolds faster than we can make them," says Scollie.

Using AI, investigators can predict how a child's ear will grow over time, so earmolds can be made in advance using 3D-printing technologies. Scollie calls the first-of-its kind project a "once-in-a-lifetime opportunity where we expand beyond the confines of what audiologists can do, collaborating with engineering and computer science colleagues who can apply their expertise to help drive this solution."

In collaboration with Boys Town National Research Hospital in Omaha, Nebraska, the project has attracted $4.4 million (USD) in funding from the Oberkotter Foundation—and praise from parents like Gould. "Had this technology existed when Charlotte was younger, we would have had more time to enjoy the sounds of birds, words and music—all the things her hearing aid allows her to experience." ●

Early intervention includes signed or spoken language development services. For many children, this also involves assessments and the fitting of hearing aids or cochlear implants.

Hearing aid fittings require special consideration because each baby's hearing and ear canal acoustics are unique and change as they grow. With no way for infants to say whether a hearing aid is too loud or too soft, precision is essential. "We really have to nail it," says Scollie, an audiologist globally recognized for her expertise in hearing technologies and hearing-aid fitting.

So how do you test a baby's hearing and hearing aids when they can't respond verbally?

That was the question audiologists faced in the 1960s and '70s after a rubella outbreak resulted in a sudden wave of infants born with hearing loss. It underscored the need for robust hearing protocols for babies and young children.

Western professor emeritus Richard Seewald, former Canada Research Chair in Childhood Hearing, took up the challenge.

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Right: Nine-year-old Charlotte Gould shows off her colourful earmold and hearing aid.

Beginning with pencil-and-paper calculations, then a calculator, floppy discs and an early Atari computer, he pioneered a prescription software program for hearing aids for babies and young children. Known as Desired Sensation Level (DSL), the software has since become the gold standard of pediatric hearing-aid fitting.

DSL uses readings from electrodes placed on the baby's head to measure how the brain responds to sound, helping clinicians calculate exactly how much amplification is needed.

Today, DSL is used by 80 to 90 per cent of clinicians worldwide for children's fittings. It is trademarked and licensed through Western's technology transfer office, with manufacturers sending their software back to the NCA for accuracy testing.

Building on Seewald's foundational work, Scollie led an NCA team to develop DSL 5. This version accommodates advances in hearing aid technology and individual user needs of both children and adults, earning the team a 2022 Governor General's Innovation Award.

With high-quality hearing-aid fitting a key predictor of speech and language development in children with hearing loss, earmolds are the critical link. These custom-fitted pieces connect the hearing aid to the child's ear, ensuring sound is properly and consistently delivered. But young children's ears grow quickly, meaning they frequently outgrow their earmolds. That causes the aids to fall out or whistle, disrupting a consistent delivery of sound. Scollie is working with engineering colleagues to address this problem through the ALLEars project (learn more on page 27). Like the origins of DSL, this research addresses a longstanding challenge.

"This has been a perennial problem in my field for as long as I can remember," Scollie says.

DSL has improved hearing outcomes and the long-term educational and social potential for countless children born with permanent hearing loss—including Stickney, who received her first hearing aid at the Leeper Clinic at age three and whose high-frequency hearing loss meant she couldn't distinguish soft sounds like "f" and "s."

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Above: Researchers Ingrid Johnsrude (left), Nima Zargarnezhad (right) and student Claire Cheung (centre) use Western's Audiodome to recreate and test the sounds of daily life in a controlled test environment, mirroring real-world scenarios.

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Cutting through the noise

Western Research Chair and cognitive neuroscientist Ingrid Johnsrude remembers seeing her father, once so engaged in world affairs, withdraw from life when he could no longer take part in conversations. A career military officer, his hearing was damaged from years flying in loud aircraft. He began wearing hearing aids in his 50s. By the time he was 70, the loss was pronounced. "It was really striking how much it affected his social life," says Johnsrude.

She's spent more than two decades studying how the brain makes sense of sound in the real world, especially when listening becomes difficult. "As we age, our hearing gets blurry," Johnsrude says. "Sounds that used to be crisp and distinguishable become hard to separate." Most of us take for granted our ability to pick a friend's voice out of a crowded room or follow conversations in a restaurant. But these noisy settings can challenge adults with age-related hearing decline. In a landmark study, Johnsrude showed how familiar voices, those of spouses or close friends, can help people zero in on speech even in dense noise, a finding that opened new avenues for supporting communication as people age.

Western's Audiodome, a geodesic structure filled with 91 speakers, allows Johnsrude's team to place listeners in simulated environments and study how they track familiar voices against competing noise. "We're interested in how people hear in the wild, with cars, dogs barking and other background noise," says Johnsrude, a Distinguished University Professor and principal investigator at the National Centre for Audiology.

The system can precisely position multiple moving or static sounds in three-dimensional space, recreating how people experience noise—in coffee shops, parks or family gatherings—without losing experimental control. It's especially timely work in an aging society, where research shows staying socially connected is vital for health and wellbeing. "As we get older, things change. But aging also brings increased knowledge and experience. We want to help mitigate sensory losses and ensure older adults continue to live happy, socially active lives." ●

PHOTO BY STEVEN ANDERSON

If you don't know what's going on around you, hearing loss can be incredibly isolating.

"Before I started wearing my hearing aid, my mom says when it was snowing, I'd sit in the back seat of the car, pointing out the window, saying, 'Look, it knowing, it knowing!' I had never heard the "s" sound before and hadn't started reading yet, so I didn't know it existed."

When she began reading, Stickney excelled, moving through levels faster than her peers. She preferred reading books on her own, rather than hearing her teacher's voice transmitted through the microphone system she had to wear in class.

"I loved words and I loved language," Stickney says.

But she didn't love wearing her hearing aids. "Some of it could have been comfort, but I think it was mostly the stigma I felt as a young child who didn't see any representation in the media or in toys. I looked for role models with hearing loss and I couldn't find any. That made me resistant and a bit of a troublemaker when it came to wearing my hearing aids."

So much so that she and her mother struck a deal: if Stickney wore her hearing aids at school, she could take them out at home.

"I was never bullied, but I felt ostracized. It wasn't overt. Schools are just full of big groups of people talking at once. I can't be part of those conversations because I only get bits and pieces. I was always quiet in those situations because I couldn't understand people."

It was even worse on the playground.

"Kids are screaming, running around and with the wind rubbing your hair against your hearing aids, it makes it hard to hear conversations. You can only ask a child to repeat themselves so many times before they say, 'never mind,'" Stickney says.

"If you don't know what's going on around you, hearing loss can be incredibly isolating."

As Stickney grew, so did her acceptance of her hearing aids. "It took me a long time to be comfortable with having hearing loss and the fact I wear hearing aids and need extra help. But now, I know it's nothing to be ashamed of."

Through regular trips to audiologists Frances Richert and Jack Scott at Western's Leeper Clinic, Stickney's gone from wearing behind-the-ear hearing aids held in place by earmolds to the current receivers she wears in her ear canals.

She says she's benefited from rapid advances in hearing aid technologies—like those tested and trialed through the NCA—and the support she's received from the audiologists and trainees at the Leeper Clinic.

"They are so patient-centred and care about what you want and need. Their goal is to make living with hearing loss a better experience. I've always loved being a patient there. They helped me be okay with going to audiology appointments."

She also credits the clinic for helping her develop a "quiet, subtle love for audiology." It was Richert, Stickney's childhood audiologist, who suggested she consider a career in the field. Though it didn't interest her at the time, the idea began taking hold when she was a teenager. It crystallized during one of her clinic visits with a student audiologist—who was hard of hearing.

"It was so cool to be on the other end of the microphone system, so she could hear me," Stickney says.

It meant even more to see someone with hearing loss training to be an audiologist.

"In that moment, I realized my hearing loss was not an inhibitor. I saw I could pursue audiology or anything I wanted. Having that representation really impacted me and helped me realize I can positively affect others."

She's one step closer. This fall, Stickney enters Western's master of clinical science program in audiology, the largest of its kind in North America.

Sound on.

"It was always my dream to come to Western because I saw how they train their students," she says. "I want to be trained in the same way."

Eager to gain early experience, Stickney was "beyond excited" to land the research internship in Scollie's lab last summer. Alongside postdoctoral scholar Mohamed Rahme, Stickney studied how different types of sports helmets affect hearing aid performance and a person's ability to hear, communicate and stay safe during physical activity.

Early findings showed the more padding in the helmet, the greater the reduction in external noise and the more likelihood for feedback.

"This made sense to me. I was never very sporty or athletic, and part of that was because wearing helmets with hearing aids was awful," Stickney says. "They go right over your ears. It's not comfortable and you get feedback."

A class skating trip in elementary school stands out.

"We all had to wear hockey helmets for safety, but it was the worst experience for me. I told the teacher if I couldn't take my hearing aids out, I would not be skating."

Stickney's experience points to missed opportunities and potential dangers for children who are hard of hearing and want to participate in sports.

"If your coach is 20 feet away and you're not facing them or you're experiencing feedback from your hearing aids, you're not going to catch the proper instruction. That's unfortunate," Stickney says. "It's also dangerous if you are skiing or skating and can't hear sounds behind you."

In that moment, I realized my hearing loss was not an inhibitor. I saw I could pursue audiology or anything I wanted. Having that representation really impacted me and helped me realize I can positively affect others.

She's hoping the lived experience she brought to her internship will also help her relate to future patients, including aging adults, who are often reluctant to wear hearing aids.

"When I hear them resisting, I see bits of my younger self in them. I've 'been there, done that,' and want to tell them there are worse things than wearing hearing aids. They're just a tool to help."

Hearing aids do help significantly to amplify sound and restore hearing. But as NCA principal investigator and cognitive neuroscientist Ingrid Johnsrude explains, they don't always mitigate the additional challenge many older adults with hearing loss face: background noise and competing voices. She's studying how the brain makes sense of sound in the din of daily life—busy coffee shops, family gatherings—as we age (read more on page 28).

"Our goal is to understand what processes are happening in the brain when we hear speech in noisy environments, particularly when someone has hearing loss," she says. "Humans are social creatures, and our ability to communicate with each other is crucially dependent on our hearing. It commonly starts to fail in middle age, putting people at risk for social isolation."

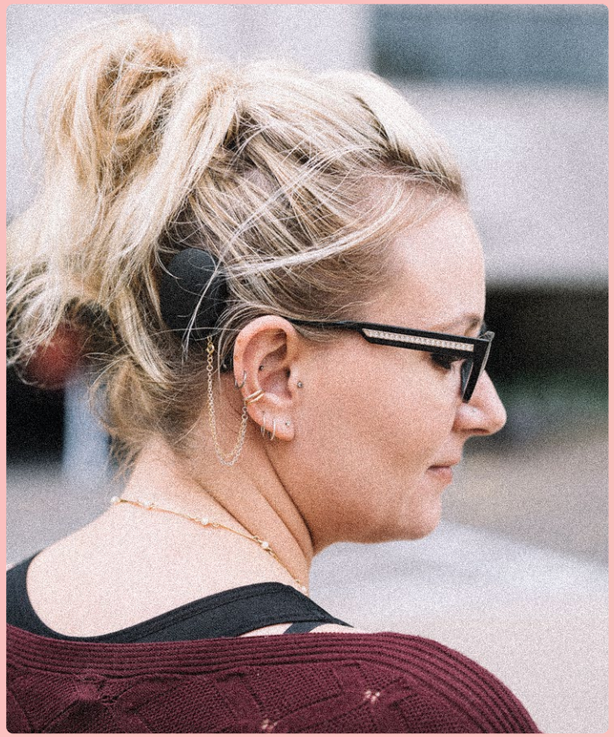
Stickney can relate, even as a young adult and with hearing technology that makes such a difference in her life.

"I will miss parts of conversations, even when wearing hearing aids, and sometimes I just won't participate. Cars and busy areas are particularly bad. Imagine a wall between the front and back seat, that's what it's like trying to listen in a car. If I can't see your face, I can't hear you," she says.

Despite the difficulties, she now can't imagine her life without hearing loss.

How she listens—to people, to language and to possibilities in her own life—is part of her identity. "My ability to hear less shapes my world differently. Because of that, I wouldn't trade it." ●

PHOTO BY JON MUNN / LONDON HEALTH SCIENCES FOUNDATION



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Left: Taryn Armstrong fitted with a cochlear implant.

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Customizing cochlear implants improves quality of sound, quality of life

As a mother of three, Taryn Armstrong worried constantly about keeping her children safe. Living with Meniere's disease, a disorder of the inner ear that causes progressive hearing loss, she struggled to hear passing traffic on the walk to the school bus.

Diagnosed at 24, Armstrong lost hearing in her right ear, requiring a hearing aid within four years. Two years later, as her hearing loss progressed, the device no longer helped. When hearing in her left ear began to fade, total hearing loss loomed.

"It was really scary," says Armstrong, who feared not only everyday dangers, but missing special moments with her family.

That changed when she became the first patient to receive a cochlear implant with customized mapping through a clinical trial led by two National Centre for Audiology principal investigators—Dr. Sumit Agrawal, a neurotologist and skull base surgeon in the department of otolaryngology—head and neck surgery at Schulich Medicine & Dentistry, London Health Sciences Centre and St. Joseph's Health Care London, and Hanif Ladak, a professor jointly appointed in the departments of medical biophysics and electrical and computer engineering.

Cochlear implants electrically stimulate the inner ear to restore hearing.

Ladak says the challenge is that in programming cochlear implants, it's assumed everyone's cochlea—the spiral-shaped part of the inner ear that processes sound—is the same size.

"The anatomy of the inner ear differs from patient to patient and because of this, their needs are very different," he says. "Yet implants have historically been programmed with 'one-size-fits-all' settings."

Agrawal and Ladak are changing that. Using high-resolution imaging and AI, they have developed a customized mapping tool that programs each implant to match the precise anatomy of an individual patient's cochlea.

"It's like tuning a piano," Agrawal says. "Patients get a cochlear implant that can be massively out of tune by one or two octaves—they can understand speech, but music or tonal languages are difficult. By precisely tuning the implants, we're hoping to greatly improve their sound quality and listening experience."

In 2023, Agrawal and Ladak's innovative work attracted $8.5 million from MED-EL, a global hearing implant company. The gift, matched by Western, created two endowed research chairs, with Agrawal named as the inaugural chair in neurotology and translational hearing innovation and Ladak as the inaugural chair in auditory biophysics and engineering.

The donation is bolstering auditory research and innovation at Western, fostering collaboration between implant developers, researchers, surgeons and patients—like Armstrong.

"This work has been life-changing," she says. "It's given me my confidence back." ●

MACHINA EX DEUS

AI sparks ideas, but humans shape their meaning

Story by Jeff Renaud
Photos by Darryl Lahteenmaa

Inside Western's McIntosh Gallery, founded in 1942 and shaped by decades of artistic tradition, writer Jeff Renaud sat down with Juan Luis Suárez, director of Western's CulturePlex Lab, and Jeffrey Lupker, music professor and co-founder of Staccato AI, to discuss where creativity is headed in an era of generative AI.

● In ancient Greek drama, **DEUS EX MACHINA** described a moment when a god appeared to solve a human problem—god from the machine. Now, in the age of generative AI, this dynamic has flipped. Instead of gods descending into a human-conceived story, we have built machines that appear to possess godlike capabilities—writing, composing music, generating images and videos and even collaborating creatively. ● In that sense, generative AI is a kind of '**MACHINA EX DEUS**'—machine from the god. The 'god' in this metaphor isn't divine. It's human imagination, knowledge and culture: the vast body of language, art and ideas on which AI systems are trained. Out of that collective human intelligence comes the machine. ● And now that the machine not only exists but thrives, it feeds back into the creative process. Rather than replacing creativity, AI begins to externalize parts of it, like the self-aware android Data from *Star Trek: The Next Generation* solving space mysteries in mere minutes after devouring all of Sherlock Holmes' most famous cases.

AI AS CREATIVE PARTNER

Generative AI chatbots and large language models like OpenAI's ChatGPT, Google's Gemini and Anthropic's Claude can generate drafts, remix styles, propose ideas and accelerate experimentation. In this computerized collaboration, the human role shifts from producing every element to directing, curating and shaping possibilities. Creativity becomes more conversational: provide a prompt, the system responds and the work evolves through iteration.

Seen this way, AI isn't the end of creativity but rather a new creative instrument, much closer to the invention of the camera, the synthesizer or digital editing tools than to an autonomous author. Those technologies initially sparked fears about replacing artists, yet they ultimately expanded the vocabulary of creative expression.

"I define creativity to my students as the crafting of the self. That's my starting point. I don't pay much attention to the innovation side of the definition, which talks about the product or the outcome. Not because it's not important, but because I try to focus on the human side," says Juan Luis Suárez, a professor of Hispanic studies and director of Western's CulturePlex Lab. "How do you craft yourself?"

For Suárez, creativity is less about producing a final work and more about the human journey: shaping identity, belief and purpose through creative action.

"How do you access your creativity? And what skills can we give you so you can keep doing that throughout your life and have a life of creation, no matter what you are? You could be a football player, a musician, a manager. The baseline question is: how do we help you craft your own self for your life?"

Founded by Suárez in 2010, CulturePlex brings together faculty and students to explore how human behaviour, language and relationships ripple across society, combining big questions with modern tools, including generative AI, to help find solutions. In one prime example, Suárez and his former PhD student Javier de la Rosa (now a research scientist at the National Library of Norway's Artificial Intelligence Lab) coded a data set of 120,000 paintings from different periods to analyze human faces represented between the 13th and the 20th centuries. They investigated whether there is a single 'indicator' of perceived beauty to establish if it has changed over time.

It's an approach that mirrors how creativity itself is evolving: human imagination, guided by curiosity and conviction, now collaborates with machines rather than competing against them.

Music professor Jeffrey Lupker is the founder of Staccato AI, a company he co-founded with fellow Western alum Jason Kowalczyk to develop AI tools for musicians. The startup was shaped in part by Lupker's participation in the Western Accelerator in 2023, a Morrissette Institute for Entrepreneurship program. A lifelong musician with a parallel fascination for technology, Lupker began merging the two during his master's degree and then in his PhD, where he composed a 25-minute string quartet using generative AI to push through creative blocks.

That work became the foundation for new software and eventually the core of his startup. At first, some colleagues found his actions unconventional, unethical and even sacrilegious. But he saw the future. →

TOOLS, NOT AUTHORS

Now fueled by that experience, Lupker envisions Staccato not as a replacement but as a collaborative tool helping musicians refine ideas, expand sketches and solve small problems without ever taking over the creative vision.

"We're like a friend in the studio with you: someone you trust who understands what you're trying to accomplish," says Lupker. "Typically, we try to solve a problem along the way for you. Creators arrive with an idea and then they ask us: 'how can I develop this?'"

Lupker's academic and professional experience reflects a larger shift in how creativity is conceived in the age of AI.

"When I think about creativity—especially with the conceit that AI is trying to assume the role of creativity in everything—it must be based on a belief system that doesn't exist in the machine. You can fake creativity, to some degree, as we're seeing with some AI models, but real creativity is going off the beaten path and truly believing in it," says Lupker. "Even if everyone thinks it's wrong and the odds of it being the next big thing are low, you push it forward. That's creativity."

Suárez agrees and believes this deeply human view of creativity helps explain why AI cannot replace it.

Sure, machines can generate output, but they can't hold conviction, purpose or moral and aesthetic values. Real creativity requires the willingness to pursue ideas that might fail, to take risks and to believe in one's path even when it diverges from convention. "It's a value system attached to whatever you're doing in the world. That attachment is as important as the process or the result," says Suárez.

So if human creativity is about belief and identity, AI's role is not to supplant that. That's inhuman. It's there only to enhance it.

"Before, if I needed an idea, I would go to the music library and pull every score that seemed related," says Lupker. "I would listen and read until I found the moment that sparked something. AI does that but incredibly fast and across every direction at once. You still need the overall goal. But it can help you get there faster."

This augmentation is not limited to music. Across media, AI enables creators to explore large datasets of human culture quickly—from images to text to sound—and to iterate in ways that were previously impossible. Yet the human remains central, directing the process, curating outputs and embedding meaning. "AI is neutral. It's not judging you. Sometimes the value is simply that it will answer your questions or fix something for you without judgment. The goal is just to help you," says Lupker.

The emotional dimension—or lack thereof—is critical. Creative work is vulnerable. Human collaboration can trigger criticism, ego clashes and at its worst, self-doubt. AI, by contrast, creates a safe space where experimentation is possible without fear. "The ability to work with a tool that doesn't question you, the way another human or an audience might, creates a safe space in the creative process," says Lupker.

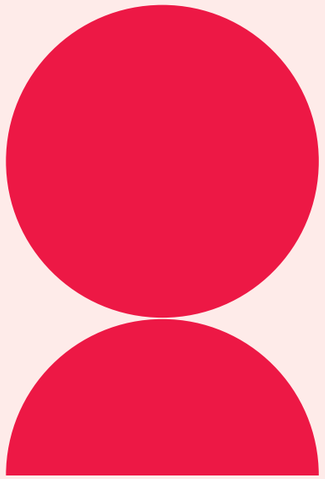
That means effective AI should support creators by fitting naturally into how they already work, helping to explore ideas and solve problems rather than forcing them to change.

"Creators spend years figuring out what works for them. If you disrupt that process too much, they're not going to use your tool. That's where I think some big companies are getting it wrong. They're trying to be disruptors. But right now, it shouldn't be about disrupting how people create. It should be about helping them think through creation," says Lupker. "A lot of these AI companies want to mass-produce music for people who have never created it before. And that's fine. But real creators already have workflows. You don't mess with that."

And the implications of generative AI extend beyond individual creativity. These tools are part of larger technological systems that reshape human behaviour, culture and social structures.

"When we live with new technologies, they change how we think, feel and create," says Suárez. "You might resist it, but history shows society changes anyway. And because today's technologies spread so quickly, they reshape our habits, thinking and social structures on a massive scale. Not everyone experiences those changes in the same way, but change is inevitable."

At the end of the day, human curation and judgment remain the ultimate filters. Creativity isn't just about output. It's about cultural resonance.



HUMAN JUDGMENT AT THE CORE

The challenge, Suárez adds, is preparing people to navigate these technologies.

"Whether the outcome is ultimately positive or negative, the best approach—even in the worst-case scenario—is to train people and give them skills so they can survive in the new ecosystem created by the new technology," says Suárez. "The reason I stay in academia, and at Western in particular, is that every year a new generation arrives. There is youth. There is life. And I hope they will be able to build something better."

But how will our value system, and theirs, change with all these technologies? "I think there are two paths. One is embodiment: what you can draw from your own body, experiences and sensations. That embodied relationship with the world will always matter. Consciousness, as neuroscientists like Antonio Damasio suggest, is deeply connected to the body's interaction with the environment: hunger, thirst and emotion. Creative people draw from those experiences," says Suárez. "The other path is mediated systems: the technologies we use to produce and share ideas. If you want to be active in the world, you must also engage with the most advanced technologies available. These two worlds run in parallel. I don't think we have to choose one or the other. We need both."

This all traces back to the 1440s, when Johannes Gutenberg, widely credited with inventing the mechanical printing press, transformed the spread of knowledge. Or even further, to 868 AD in China, when the *Diamond Sutra*, the oldest surviving dated printed book, was produced using woodblocks. The broader pattern of human creativity has been intertwined with technology for centuries. Generative AI is simply the latest incarnation. Each shift has created new challenges, reshaped education and altered access to knowledge and culture.

Despite these disruptions, Suárez says humanistic values remain central. "The humanistic tradition has always been about passing knowledge from previous generations. We pass on the great actors, composers and ideas. But we've reached a moment in the digital age where there has been a fracture. We now must ask: 'how do we help the next generation retrieve what they need for the future?'"

In this scenario, AI becomes the gateway not the gatekeeper. It is simply a tool like the printing press that can help pass on knowledge, but we mustn't simply repeat what came before. Instead, AI must continue to amplify human creativity, helping us preserve the past while still forging new ideas and fresh directions for the future.

"AI is trained on what humans created. Humanity is still present in that," says Lupker. "I don't think AI removes humanity. It just creates a different way of making art, making music. In many ways, it's just a new instrument. When digital instruments appeared, people said drum machines would put drummers out of work. That never happened. In fact, live music experiences expanded even more."

And for the haters, who cite the existential threat of a generative AI platform like Suno churning out roughly seven million songs daily, it's important to recall creative industries were already producing enormous volumes of repetitive, cyclical works of art long before the advent of artificial intelligence. The music industry, for instance, is largely algorithmic and has been for more than a century.

Billboard's charts, the industry standard since the magazine debuted in 1894, have long used a formula combining radio airplay and sales data to rank songs. Labels, promoters and performers learned to 'game' the system by timing releases, boosting promotion and targeting key markets, essentially optimizing music success according to a set of measurable inputs and outputs.

"Songs started getting shorter because streaming platforms reward tracks that are listened to all the way through. So instead of eight-minute songs like 'Stairway to Heaven,' you get two-minute songs optimized for streaming. It reminds me of streaming platforms like Netflix, Amazon Prime and Apple TV. There's so much content available and a lot of it isn't very good. But occasionally, something like *Severance* appears: beautifully written, acted and produced. You can feel the human collaboration behind it. I think the future will be similar. There will be an enormous amount of content, but truly great work will still stand out," says Lupker.

At the end of the day, human curation and judgment remain the ultimate filters. Creativity isn't just about output. It's about cultural resonance.

"The value of art isn't just for the creator. It's also for the listener. If someone draws on their experiences and expresses something that resonates with the listener's own experiences, that's where value comes from," says Lupker. "Sometimes music changes the world simply because it hits the right emotional moment. Take Nirvana. They weren't virtuoso musicians, but their sound and attitude spoke to a generation. Something in the culture aligned with that music, and suddenly it had enormous value. So the listener is part of that equation too."

AI's potential isn't limited to speeding up creativity for those already equipped with skills, nor does it only regurgitate new content based on art it's been trained on. It synthesizes, rearranges and mimics patterns from existing content to create something new. While the results can feel imaginative and even inventive, they're ultimately statistical probabilities built on what already exists, not 'original content' in the human sense. →

WIDENING ACCESS

Generative AI also opens possibilities for underserved communities and creators who previously lacked access.

"Historically, huge record labels controlled what music reached audiences. Now, AI tools can help independent creators reach the exact listeners who would appreciate their music. AI systems could tap into those audiences. That part excites me," says Lupker.

But access is uneven and digital infrastructure is only part of the problem. Technology alone cannot solve inequities. Instead, AI systems must be designed with the needs, skills and oversight of communities in mind.

"In many parts of the world, people still don't have reliable electricity, let alone AI tools," says Suárez. "So the challenge isn't just innovation. It's equity. We need to be creative about how these technologies are developed and shared and ensure people have the skills to use them. Otherwise, the benefits of AI—and the ability to shape its creative potential—will remain concentrated in just a few hands."

To this point, Suárez cautions that while AI holds enormous potential, the way it is deployed, and by whom, ultimately shapes who benefits.

"Technology isn't the same as the companies or platforms that deliver it. And those platforms often try to control the entire ecosystem," he says. "If we rely only on private systems, we risk undermining the foundations of democratic life. There's an opportunity for public institutions to build their own AI infrastructure, with safeguards, much like we do with schools or health care."

He points to another challenge: technological concentration. "Companies like Google have massive advantages," says Suárez. "They possess enormous datasets, from decades of search queries to transcriptions of YouTube videos. That scale makes it difficult for smaller companies and individual creators to compete."

And this concentration of data and computing power doesn't just tilt the competitive landscape. It may also shape who gets to participate in an AI-fueled future.

"If you don't have access to technology, you could be left behind. More advanced technologies, like brain-computer interfaces combined with AI, could become extremely expensive and widen the gap between those who have access and those who don't," says Lupker. To minimize this gap (because there will always be a deficit), ethical design, accessibility and community involvement are equally crucial.

"The key is to involve people in the design from the very beginning. You start with the needs and the skills—or the lack of skills—of the people who will actually use the system. The design has to come from them," says Lupker.

POWER AND PITFALLS

But even with all the potential for empowerment, ethical concerns, including labour dynamics, remain. Music and other creative work are laden with copyright and ownership issues, and AI complicates them.

In landmark legal cases, Sony Music, Universal Music Group and Warner Music filed lawsuits against Suno and its chief rival Udio in 2024, after both AI companies admitted to training on copyrighted music. Udio has since settled after moving to a more controlled system, where it manages the platform, content and data in one place. Suno has reached a deal with Warner Music but was still in legal battles with the two other labels at press time.

"Audio models can recreate existing sounds. If a system generates something that closely resembles the way a particular guitarist plays, the tone they spent years developing, the exact amplifier settings, the way they strike the strings—that becomes a real concern. Even if you can't copyright a chord like C major, a musician's sound and style come from years of work. Hearing something very similar generated instantly from a prompt can feel frustrating," says Lupker.

But the debate isn't only about creative ownership. It's also about the very livelihoods tied to those skills.

"At Staccato, we don't train on artists' intellectual property because it's bad business. If artists think you're going to take their material and give it to someone else, they won't use your product. From that standpoint alone, it doesn't make sense," says Lupker. "It also affects employment. Session musicians were hired because they could do something the songwriter couldn't do. If AI replaces that role, those jobs will disappear."

This concentration of data and computing power doesn't just tilt the competitive landscape. It may also shape who gets to participate in an AI-fueled future.

INDIVIDUAL ADAPTATION

One of generative AI's most transformative features may prove to be personalization. By adapting to the needs of individual learners and creators, AI can help people progress at their own pace, sidestepping the limitations of traditional one-size-fits-all approaches.

"For the first time, learning and creative tools can adapt to individuals. You don't have to conform to a single standard. You can learn at your own pace. That part is very exciting," says Lupker. And even as AI systems become more sophisticated, human agency, judgment and oversight will remain critical to creativity. Designers must balance capability with trust, transparency and respect for creators' intentions.

"Trust helps a lot. My background is music. I don't come from computer science or business. My starting point was simply wanting to build something for musicians first. Because of that, many musicians trust us," says Lupker. "Some people don't, no matter what, and there's probably no convincing them."

Yet Lupker and Suárez remain optimistic. They see AI like previous technological revolutions, reshaping rather than replacing human creativity and creating opportunities for experimentation, democratization and amplification of human talent. It challenges institutions, laws and social structures, but doesn't remove the centrality of human judgment, belief and experience.

Even as AI generates ideas, remixes work or predicts patterns, it is the human commitment, judgment and interpretation that bestows cultural meaning on a work of art. Machines can accelerate, assist and expand creativity, but the sparks of imagination and realities of experience remain uniquely human.

In the end, AI functions as both a mirror and amplifier of human culture. It embodies the vast accumulation of language, art and ideas—a machine made by humans, for humans, reflecting back the creativity that generated it. But when the discussion becomes purely oppositional—generative AI is good or bad—people will check out, Suárez warns. "We need a more nuanced conversation about how these technologies will shape the future," says Suárez.

AI may look like magic. But its 'divinity' is the collective human imagination, knowledge and culture scaled up. Creativity is not diminished by AI. It is reconfigured. Human belief, purpose and embodiment remain central, guiding machines, curating outputs and ensuring that, no matter how fast or vast creation becomes, truly great work still resonates.

Deus ex machina solved the great Greek plays of the past. Machina ex deus can bring humans and machines together to make great art. And it's just the beginning for the future of creativity. ●

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Above: Juan Luis Suárez (left) and Jeffrey Lupker discuss AI and creativity in the McIntosh Gallery.

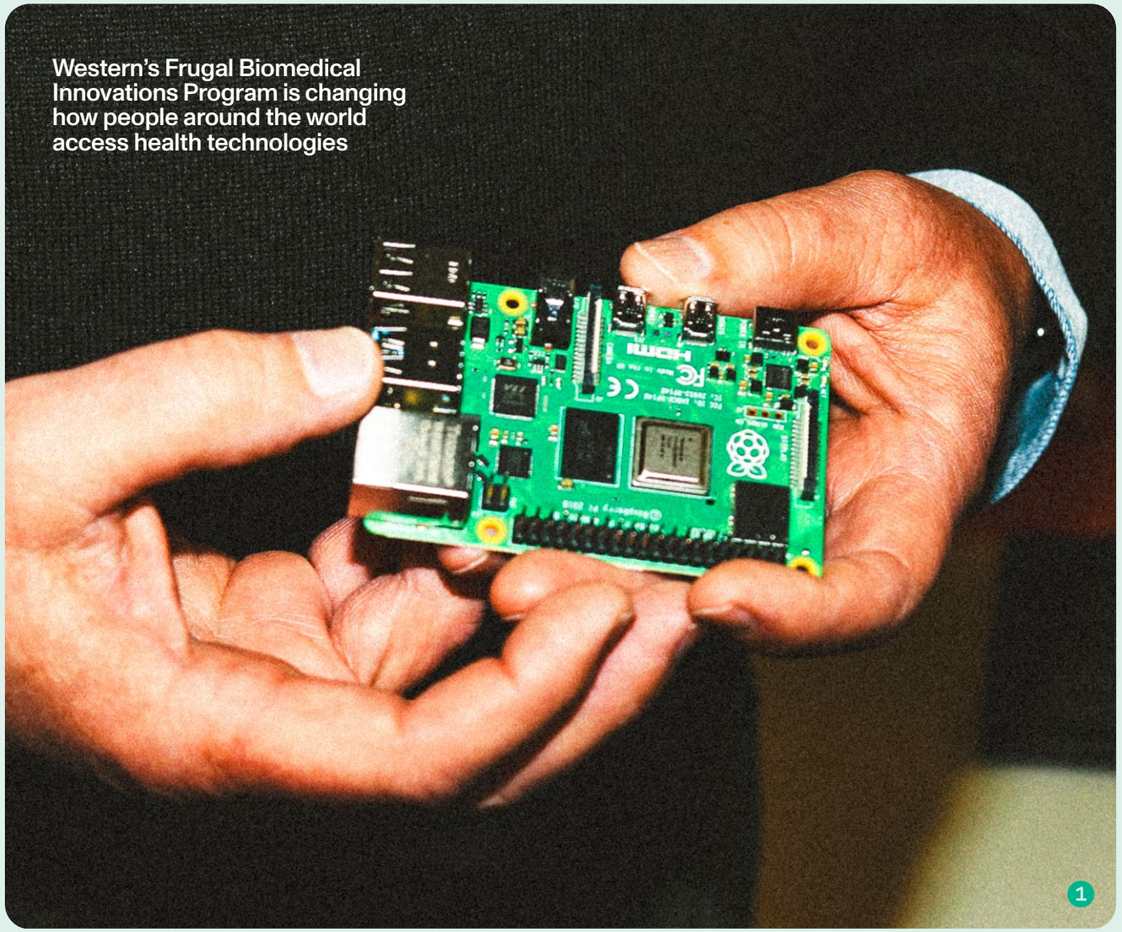


PHOTO BY COLLEEN MACDONALD

Closing the_gap

Story by Colleen MacDonald
Photos by Colleen MacDonald, Ian Cunningham and Immanuel Musau Afrika

In a hospital in the Ugandan city of Mbarara, Western professor Ian Cunningham and research student Justin Yang walked through a pediatric ward lit only by daylight coming through barred windows.

Accompanied by Ugandan biomedical engineer William Wasswa, they navigated the room crowded with beds but little medical equipment. Sick children sat close to their mothers on every bed. More children huddled on the floor.
As they left the ward, the sobering reality came into sharper focus.

"Dr. Wasswa told us, 'The majority of those children are suffering from malaria. Many of them will not survive,'" Cunningham says.

Africa bears the overwhelming weight of malaria infections, with 95 per cent of the world's cases. The mosquito-borne disease remains a leading cause of death on the continent, killing an estimated 579,000 people in Sub-Saharan Africa in 2024, according to the World Health Organization. Children under age five account for more than three quarters of these fatalities.

"The problem they're facing is profound. Malaria is the number one cause of death in Uganda, particularly among young children—and that's the biggest tragedy of it," Cunningham says.

The early symptoms—fever, headache and chills—are indistinguishable from any number of other conditions. Early diagnosis is essential for starting treatment soon enough to be effective, but most malaria infections occur in rural areas where trained medical technicians are scarce. So too are the expensive optical microscopes that provide the most reliable diagnosis. Medical equipment that has been imported or donated has not proven to be a sustainable solution. Most of these devices end up in what researchers call "medical equipment graveyards", unused due to technical incompatibility or environmental conditions they weren't built to withstand.

"It's a very common issue here," says Wasswa, head of the department of biomedical sciences and engineering at Mbarara University of Science and Technology in southern Uganda. "I can find new equipment, but components might be missing or not locally available, and when it breaks down it can't be repaired. Importing technology that works well in Canada isn't useful without customizing for the conditions and unique needs here."

It's exactly the kind of problem Western's Frugal Biomedical Innovations Program (FBIP) aims to solve. The multi-faculty initiative, led by the Faculty of Engineering, develops and deploys affordable medical devices in low-resource communities in northern Canada and Africa. The program, described as the first of its kind in Canada, addresses a stark inequity—more than half the global population has no access to essential health services, and people in low- and middle-income countries use barely a quarter of the world's medical devices.

"These health equity failures aren't just numbers. They lead to delayed treatment, misdiagnoses and preventable suffering and deaths," says Margaret Mutumba, FBIP director.

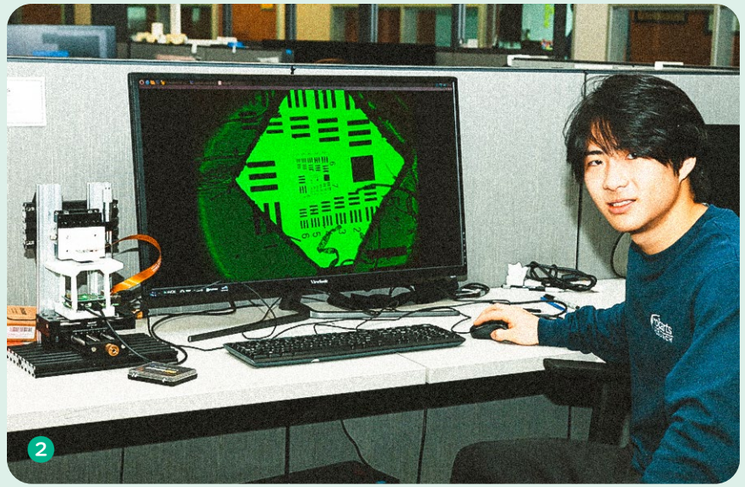
"We need to fundamentally shift how we approach medical technology in global health."

COMMUNITY NEEDS, STRENGTHS DRIVE INNOVATION

Established in 2022, FBIP takes a unique approach to developing medical technology.

"We are designing low-cost, high-performance medical technologies from the start, with partners who know these communities from the inside. This ensures innovations are responsive to the realities of daily life," Mutumba says. "It's the difference between creating technology for people and creating it with them."

Wasswa knows well the dire need for biomedical devices specifically designed for conditions on the ground. While working towards his PhD at Mbarara University, he developed a 3D-printed microscope slide



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Previous: A single-board computer known as a Raspberry Pi powers the microscope.

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Left: Third-year medical sciences student Owen Lee, testing the image resolution of a low-cost microscope at Robarts Research Institute.

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Opposite page: From left, Mbarara University biomedical engineer William Wasswa, Schulich Medicine & Dentistry professor Ian Cunningham, Mbarara microbiologist Kennedy Kassaza and Justin Yang, BMSc'23.

PHOTO BY COLLEEN MACDONALD

scanner that uses AI to detect cervical cancer, providing results much faster and at considerably less expense than traditional screening. His innovation soon had him considering whether similar time and cost efficiencies could be achieved in diagnosing malaria.

"I wanted to get diagnostic microscopes to people in hard-to-reach, rural areas. By the time infected people get to a health clinic with diagnostic devices, their disease can be quite advanced," Wasswa says.

Malaria can move with devastating speed. Fatal cases lead to multi-organ failure, convulsions and acute respiratory distress as fluid fills the lungs.

In 2021, as Wasswa was exploring how to develop a low-cost optical microscope to detect malaria in blood samples, he met Ian Cunningham, a medical biophysics professor at Western's Schulich School of Medicine & Dentistry who was volunteering in Uganda with Academics Without Borders (AWB). The two joined forces through the Canadian non-profit, which funded their initial work in devising a low-cost microscope through an AWB engineering program. "We worked very closely, meeting weekly on Zoom during the pandemic, evaluating techniques other researchers used," Cunningham says.

Their challenge involved competing demands: designing a microscope that could be built for just a few hundred dollars yet could image the malaria parasite at a resolution of one millionth of a metre.

Their emphasis on frugal engineering within a collaborative partnership would soon make the project a perfect fit for FBIP.

LOW COST, BIG RESULTS

More than a dozen FBIP projects are currently underway in eight countries. They range from 3D-printed prosthetic limbs to brain oxygen monitors for babies to wearable disease sensors and more, all aimed at achieving maximum effectiveness in real-world conditions—and, crucially, the ability to be used and sustained over the long term.

"All our innovations are created to be manufacturable on the ground," Mutumba says. "If you can produce and maintain an affordable medical device in your own community, that goes a long way toward closing the global health care gap."

FBIP focuses on three areas: shared development of technology, building equitable partnerships and training students. The low-cost microscope project reflects these core priorities and has been fostering student-led innovation from its beginning. So far, Cunningham has supervised 10 undergraduates on the project, each one advancing the design or developing the technology that will bring it to full diagnostic capability.

Cunningham's first recruit was Justin Yang, who'd just finished his second year in medical sciences at Western. Yang was inspired by a publication from the University of Glasgow about a computational microscope using Fourier ptychography. Instead of viewing a sample through a lens like a conventional optical microscope, this technique captures a range of information from multiple angles of illumination, then reconstructs a higher-resolution image, which is displayed on a computer screen.

"The group in Glasgow managed to do this with low-cost materials, so we decided to try it for malaria diagnosis," Yang says.

Adopting ptychography proved pivotal. Shortly afterward, Yang teamed up with two Western mechatronic engineering students, Cunningham's son Robin Cunningham and classmate Sammy Farnum, who had tried the technology for their own low-cost microscope. The trio advanced their prototype microscope, winning multiple engineering and innovation competitions along the way.

It showed promise, but the prototype required more funding to become a diagnostic tool. In 2023, Ian Cunningham secured a Frugal Biomedical Innovations Catalyst Grant, which funds undergraduate students working full time for the summer with faculty to design safe, effective health-care solutions for settings where electricity, water or digital infrastructure may be unreliable.

"Learning to innovate within these constraints helps students to think and work beyond familiar settings and adjust their designs based on feedback from the partners and communities they're designing for," Mutumba says.

'WE CAN SOLVE ONE'

The low-cost microscope project captivated Yang, who continued working on it even after his co-creators graduated. By the summer of 2024, he joined fellow undergrads Aidan Fry, Rajan Leung, Raymond Li, Noah Park, Sarah Malik, Mohammed Mir, Brandon Pautler and Owen Lee[2] on a shared mission to produce images with resolution unmatched by any other team.

"Watching them dive into the project was so rewarding," Cunningham says. "They worked together really well, utterly focused on getting those first images of the malaria parasite by the end of the summer."

Lee, then a first-year medical sciences student, helped rewrite code that runs the components of the microscope. Making these improvements to the ptychography demanded patience and persistence. "In research, sometimes things don't go as expected and there are unanticipated delays. You discover solutions as you go," Lee says.

The microscope, built with a 3D-printed body, contains a credit card-sized computer board known as a Raspberry Pi[1], often used for DIY electronics projects. Their design offers remarkable precision for a modest cost of about $150. Yang bridged the software and hardware, and helped whittle down the processing time for generating a high-resolution image from hours to a minute.

"Every day, the image produced by the microscope was getting incrementally better, and then when we weren't expecting it, we suddenly saw the malaria parasite," Yang says.

Cunningham's team became the first in the world to produce images of human malaria parasites in red blood cells using a low-cost Fourier ptychography microscope, validated against a conventional lab microscope. "When the students came to me with this, I couldn't believe it. It was so exciting because their very first results were already working," Cunningham says. "It felt like we could solve all the problems of the world. Of course, that's not true, but this gives me hope that we can solve one."

IMAGING, FUNDING PROGRESS

Last year, Yang and Cunningham travelled to Mbarara University to get feedback from Wasswa and his colleagues on their prototype microscope.[3] Mbarara microbiologist Kennedy Kassaza confirmed the resolution was clear enough to identify the parasite that causes malaria, though the monochrome images lacked one aspect for true diagnostic quality—colour.

It wasn't a minor detail.

Colour imaging reveals the hallmark blue rings and purple dots inside malaria-infected blood cells—an unmistakable diagnosis needed to identify and treat the disease. That confirmation is important because blanket treatment isn't effective. Widespread, unnecessary use of anti-malarial drugs leads to anti-microbial resistance, Wasswa says.

"The drugs can become ineffective, and we're seeing that happening now," he says.

Cunningham is confident his students are getting close to colour images. Months after their paid work ended, Lee is still volunteering in that pursuit, along with Yang, who's now studying at Schulich Medicine & Dentistry. The two are working with a new student, Hao Bai, building on the cumulative efforts of all contributors to elevate the microscope further. The goal is a dust-proof, battery-powered version tailored for rural Uganda where electricity is unreliable and dust is common.[4] Because cell phone infrastructure in Uganda is quite strong, it will also incorporate Wi-Fi connectivity to transmit images from microscope to lab using mobile data. →

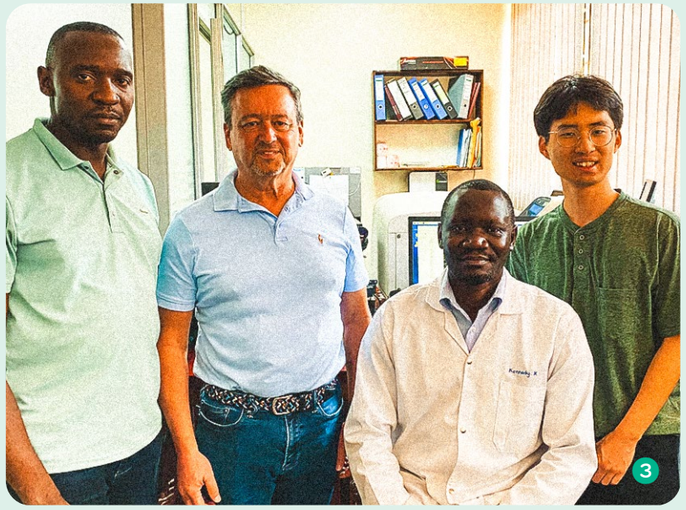

PHOTO BY IMMANUEL MUSAU AFRIKA

TESTING THE INNOVATION

Before the microscope is ready for deployment, it must be evaluated on real patients in Uganda. That step awaits funding. Cunningham says he's in a strong position to seek it because the initial funding from FBIP generated pivotal preliminary results.

"Support from the Frugal Biomedical Innovations Program is what allowed us to show proof our concept will work. We can now make that case to granting bodies and foundations."

FBIP projects are designed for collaboration, all the way from idea to implementation, by engaging the private sector, governments and communities alongside scientists, Mutumba says. "Beyond developing prototypes, we encourage students and researchers to think about how innovations can actually reach people and have the desired impact."

Getting the devices to those who need them can add another layer of difficulty. The microscope will take more than engineering—it requires a business case. The Western-Mbarara team is exploring possible partnerships with companies whose employees miss work often due to malaria.

To expand access further, frugal biomedical innovations are open source. Unlike proprietary devices that are restrictive, expensive and time-consuming to deploy, open-source devices bypass such limitations. Their design, software and technical specifications are publicly available, allowing for community-driven improvements and opportunities for commercialization.

"Open-source projects get others excited about working with you," Cunninghan says. "Our commercial opportunity isn't in locking down the idea, it's in building the device and setting up a pathway for images to reach a lab."

PHOTO COURTESY OF IAN CUNNINGHAM

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Top: The frugal microscope must withstand conditions in rural Uganda where unpaved, dry roads contribute to pervasive dust.

UGANDAN INSPIRATION

For the students who've contributed along the way, the research has left its mark. Yang came away from his visit to Mbarara with an admiration for the resilience and creativity of people working in the most resource-constrained areas.

"When I visited Dr. Wasswa's lab, I was really struck by how they'd developed face-shield masks during COVID, producing them at low cost and working with what they already had available to create what was needed. We can really learn from that resourcefulness," Yang says.

Cunningham's vision for the project is clear—passing the torch. "I want to see it in the hands of William and Kennedy, the scientists at Mbarara University. I'd love to be part of the journey, but I want them to embed this technology in their system, in their communities." When that happens, Wasswa has his own dream for making the microscope's diagnostics accessible to even more people. He plans to design a pen-sized microscope that incorporates AI to confirm diagnosis.

"We are very sure we can scale down the size of the microscope because its novel use of Fourier ptychography eliminates the large, moving parts of optical lab microscopes," Wasswa says. "The future of this project is a device that allows people to screen for themselves in their own homes."

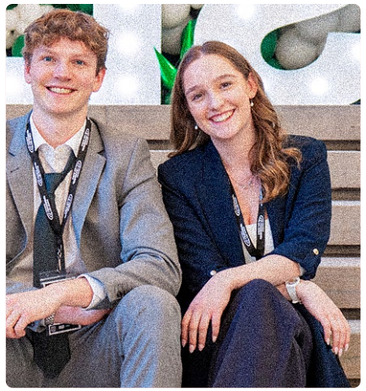
For Wasswa and FBIP partners across Africa, North America and beyond, the work is about much more than the medical devices themselves.

"Our microscope project has the beauty of building capacity while opening new avenues for research and a viable pathway to malaria diagnosis for everyone who needs it," Wasswa says.

And most promisingly, a future where geography is no barrier to essential health care. ●

Beyond the classroom

STORIES FROM OUR COMMUNITY



Natalia Brkic
fourth-year Ivey student and co-chair, 2025 Ivey Sports Leadership Conference (right) with her co-chair Cole Parsons.

Many people say you'll meet your best friends and discover your "why" at university. I never imagined my most meaningful connections would be formed not within dorms or classrooms, but at a business conference.

The Ivey Sports Leadership Conference (ISLC) draws hundreds of students from across Canada and features big names from the sports business world. This year, speakers included Edward Rogers, BA'94, chair of Rogers Communications, and Nick Eaves, BA'90, Maple Leaf Sports and Entertainment COO. The conference has given me lasting memories and shaped who I am.

I first attended ISLC in 2023, when I was desperate to hear a talk from Adam Burchill, then head of sports for TikTok North America. Tickets were sold out—so I snuck in. I didn't hide in the back; I walked right up to Burchill after his talk.

That risk changed the course of my journey at Western. I was so inspired I went again the following year (I bought my ticket that time!) and was later invited to apply for co-chair. I became the youngest person to lead ISLC.

With a goal to make the sports business industry accessible to students nationwide, we scaled up and hosted the largest event in our history. The role taught me what it takes to build a business. We had to think on our feet and understand the problems we were solving for our partners.

When I saw Burchill earlier this year, I told him, 'You're the reason I'm in the business.' In an amazing full-circle moment, I've joined his team at Maple Leaf Sports and Entertainment for a summer position.

This conference has had a major impact on my life. It helped shape my career path, build lasting friendships, find mentors and grow my network. I passed the reins to the next ISLC cohort this year because I believe so strongly in the experience and what it teaches. Each year deserves a new vision, and I'll always be there to cheer them on. ●

TOP: PHOTO COURTESY OF NATALIA BRKIC; RIGHT: PHOTO COURTESY OF PARSA NASIRIAN

Like many students, I spent much of my undergrad discovering my passions. I was especially intrigued by the rehabilitation sciences.

As a lifelong sports lover, I could picture myself in sports physio, helping athletes return to what they love. Exploring these pathways, I wished there was a way to tap into physiotherapy students' experiences and advice to understand the field more deeply.

That's what made the Western Rehab Club so meaningful to me. In 2022, I joined a small group of like-minded friends to help found the club. As external director, I focused on building support for students by helping them explore volunteering opportunities, connect with graduate students and professionals and learn about different career paths in rehabilitation sciences. We launched the Rehab Expo, a free, annual networking and educational event that's grown every year.

I graduated from Western with a bachelor of health sciences in 2025, and though I didn't pursue physiotherapy, my work with the Rehab Club helped me find the right path. Through my love of sports and longtime work with Special Olympics, I witnessed firsthand the barriers people with special needs can face in accessing care, especially oral health. I am now completing my master's at Western, where my research focuses on special needs dentistry and improvement of equitable access.

Looking back, I see my undergraduate years as a time of discovery, not uncertainty. Through the Western Rehab Club, I hope I helped create a meaningful starting point for others to explore their futures, just as I did. I'm proud the club has played that role for others on their journeys, and I hope it continues to do so for generations of students. To me, that's what Western is about: building your own future while helping others build theirs, too. ●

Parsa Nasirian
BHSc'25, MSc'26, director, Western Rehab Club.

Symphony of the birds

Story by Megan Stacey
Photo by Tommy Theis

PHOTO BY TOMMY THEIS / KANSAS STATE DIVISION OF COMMUNICATIONS AND MARKETING

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Alice Boyle is a Western biology professor and member of the Centre for Animals on the Move and Advanced Facility for Avian Research. Boyle and her team investigate "fundamental ecological questions" about birds and why some of them are in trouble.

Music was her first love. Alice Boyle grew up in Winnipeg, in a home full of instruments—there was never any question that she, too, would play one. After her parents nixed the first pick—tuba—she tried her hand at piano and discovered she really didn't like it enough to practice. Then she chose viola.

It led Boyle to a bachelor of music from the University of British Columbia and later to the National Symphony Orchestra of Costa Rica, her first job after earning her degree. But in the tropics, she got hooked on a new passion as she adventured, exploring the plants and animals of Central and South America.

She'd received a pair of binoculars and a book on birds as a graduation present. It sparked a lifelong joy that would reshape her trajectory and eventually bring her back to Canada to join Western's Centre for Animals on the Move.

Boyle had always loved wildlife, but surrounded by Costa Rica's rich biodiversity, there were endless new possibilities to learn and enjoy nature.

"Every day off, I'd get on a bus and go to a new place to look at birds," she says. "All the rocks were covered with plants and animals. I ended up becoming an avid natural history buff, not just birds, but plants and butterflies as well."

Boyle's home became a hotspot for researchers heading into the field because of her partner's work as a biologist. She often joined, helping teams with their projects.

Her career—and life—has been defined by two pivotal moments. The first came when she left the orchestra. "I decided I wasn't going to be a professional musician anymore. I was going to do something else."

But she didn't know yet where she'd end up. Boyle took a job as a field tech, because she had the skills and loved being outside. She studied songbirds and seabirds like the Marbled Murrelet and took months-long birding and snorkeling trips in her antique VW van.

Eventually, Boyle found herself internally critiquing the methods and approaches used in the field. She could see a better way. "I decided I didn't want to be someone else's tech forever."

Grad school was the next stop—the second pivotal moment. It took intense studying and the biology GRE—a standardized test used for many graduate school admissions—before she could pursue her new path.

Boyle still didn't think she'd end up in academia. She figured she might run a field station. But she fell in love with the pursuit of scientific knowledge.

"I found that I really liked research. I loved finding the answers," Boyle says. "This is one of the joys of being an academic; you get to discover things that need finding out."

Her PhD was followed by two postdoctoral positions, including one at Western, investigating why birds behave certain ways in the wild, especially during migration or when faced with changes in rainfall amid climate change. She spent 13 years at Kansas State University, becoming recognized across the field for her work in bird movement ecology and population dynamics.

The Boyle Lab studies birds in the wet forests of Costa Rica and grassland species in the North American prairies, like the Grasshopper Sparrow.

In 2025, Boyle left Kansas State to return to Western and join the Centre for Animals on the Move, led by her former postdoctoral supervisor, Chris Guglielmo. "One of the biggest things that excited me about this job is that Western has an absolutely incredible community of people studying animal movements and birds. I can go down the hallway to talk science with people who care about the same topics I do and have great ideas to share," Boyle says. "The Centre for Animals on the Move is a major draw for me. It's four years in and getting better all the time. I really look forward to helping it grow."

The love of research that inspired her academic career still drives Boyle, now the Canada Research Chair in Global Animal Movement Ecology. "What keeps me going is the very direct relationship between the effort I put in and potential change. I try to do at least part of my work in areas where there's a direct conservation application," she says.

And though she pursued science, Boyle didn't leave music behind. She still plays frequently, mostly fiddling, providing entertainment at dances and Irish halls, including the odd on-campus performance, at spots like The Grad Club.

"It's the best possible antidote for science. It gives my brain a total break—you have to use it all to be able to play," Boyle says. "It's a great de-stressor and gives me such pleasure."

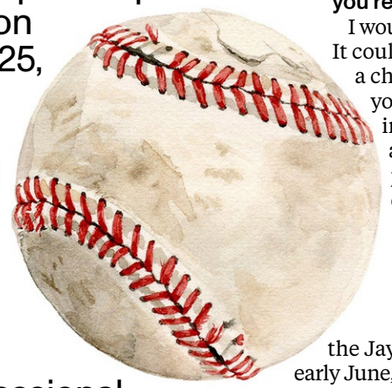
Her musical passion also makes her a better scientist, Boyle says. From the lessons she learned performing, to the perseverance and drive it took to make it as a musician, her background continues to pay dividends.

"Music creates new neural pathways in different parts of your brain—that allows me to see things differently and fuels the creative processes that are very much a part of science. Coming up with new ideas and new explanations and new ways to do things, that's all very much a creative process." ●

The call of the game

"And a swing … and a fly ball to left field. Back goes Arozarena and … it's GONNNNNNNE. George Springer puts the Blue Jays on top with a huge three-run homer."

Six million people watched the American League Championship Series (ALCS) Game 7 on Sportsnet on Oct. 20, 2025, as the Jays faced the Seattle Mariners. They heard Dan Shulman call the "Springer Dinger"—a go-ahead home run that put the team on the path to its first World Series since 1993.



Like any good professional, Shulman, BSc'89, makes the work of a sports play-by-play broadcaster look and sound easy. His smooth and confident delivery has been guiding fans through Jays games and ESPN NCAA basketball games for three decades. He's won major awards. But his path to becoming a prominent sports broadcaster wasn't at all what he planned. *Western Alumni Magazine* senior editor Paul Fraumeni spoke with Shulman in February, just before the Jays began spring training and while he had a precious few days off between ESPN games.

Interview by Paul Fraumeni
Illustrations by Melinda Josie

You mentioned you have four Zoom meetings in the next few hours. You're not calling a game today, but you're still busy. Is that typical?

I would say a handful per week is typical. It could be podcasts, a radio interview, a charity event or conversation with a young broadcaster who's trying to get into the business. I try to put them all on one day if I can. These are just other parts of the job that not everyone necessarily sees.

Let's start with that 2025 season. Quite a ride, but it didn't begin well.

The first two months of the season the Jays weren't going anywhere. But in early June, all of a sudden, they started scoring a ton of runs. Series by series, they played better. The Yankee series over Canada Day weekend was a major turning point.

From then right through until mid-September they were absolutely great. Week by week, I would turn to colleagues Buck Martinez or Joe Siddall and we'd wonder if these guys could keep doing what they were doing. They had a little valley in September, but they managed to do it. And that post-season was something we'll never forget.

Did you feel the whole country coming together and rallying behind this team?

We feel it in any given year. The Jays get great support in almost every city. We always appreciate that we call games for a team that is so meaningful to so many. But 2025 was something else. I was getting texts from people I haven't heard from in 20 years saying, "Wow, this is amazing."

Take my sister, for example. She may never have watched a baseball game before last September. And by the ALCS against Seattle, I'm getting texts from her at 3 p.m. saying, "I can't wait 'til first pitch."

You've broadcast basketball, football, hockey, Olympics, baseball. You obviously have a thing for sports. Where does that come from? Were you an athlete in high school?

Not a great one. But, from my earliest memories, I was an enormous sports fan. We had an unfinished basement in our house in the Toronto suburbs and when I was a little kid, I was down there constantly in a Leafs jersey shooting a ball with a stick, or I was on the street playing road hockey or shooting hoops on the driveway. I would read every box score in the papers and all the standings, including university sports. I knew if U of T was ahead of York, if Laurentian was struggling, and what Queen's and Western were up to. It was all I wanted to do. I took school seriously and had lots of friends, but my life revolved around sports.

Was it a childhood dream to broadcast sports?

No. I followed the games on radio and TV, but I didn't see myself doing that. I never thought about broadcasting at all until my first year at Western. My parents had encouraged me to do extracurriculars at university. It was my first week and I decide I want to write sports for the student newspaper, the *Western Gazette*. No journalism background or aspirations. I get to the University Community Centre and there are at least 100 people in line to try to get something going with the *Gazette*.

So I leave the line. Turns out to be one of the best things I've ever done because as I'm heading back towards my Saugeen dorm, I walk past a door that says Radio Western. I knock on the door, I hear a voice say, "Come in." I ask, "Is this the campus radio station?" A guy says yes. "You do sports?" Yes. "You need volunteers?"

That Saturday they sent me to Windsor, where Western was playing football, and I get the second half on air as the colour commentator. I then started calling basketball and the odd hockey game, and even had a talk show called *From the Cheap Seats*. But I never expected to make a career out of it.

In second year, I started to major in actuarial science. In fourth year, I stopped broadcasting because you have to write exams to get accredited and I needed to focus. So I wrote the exams and graduated as an actuary. As much fun as I had at Radio Western, I still never really thought about trying to make a career out of it.

You actually worked in the actuarial industry, right?

Yes, I worked for a firm for about six months. But after just a few months, I was getting antsy. I kept wondering if I might be able to make it in radio. Early in 1990, I was able to get a part-time job at CKBB, a small station in Barrie, and for a couple of months, I did that on weekends while I continued working weekdays as an actuary.

I was hired as the low rung on the ladder, but my colleagues were incredibly kind and took me under their wings. After two weeks, I knew this was what I wanted to do. Joe Cummings, who now works at CBC Radio, really helped me. He was always saying, "Come on over, let me show you how to do this."

I did everything I was asked—covering elections, courts, reading the farm report, the pet lost-and-found, the in-memoriam listings and then eventually newscasts and sportscasts. It's one of the most important lessons I tell young people today. Get involved, don't be shy about asking questions and do whatever you're asked to do. →

Then you went for broadcast full-time?

Yes, after a couple of months doing one job during the week and the other on weekends, I went to Barrie full-time. And then about a year later, in 1991, I got hired by CJCL in Toronto. Another stroke of luck. I happened to show up at the exact moment they were starting to contemplate becoming the sports station you know today as The Fan.

I was 24 years old and crazy about sports. I did whatever they asked me to do. A few weeks in, somebody says, "Hey, can you go down to the Leafs game? Just stick a microphone in the media scrum with the coach, bring it back and clip off a few answers for our sports guys." I found it all unbelievably exciting.

I like to tell this story about my dad. He was a great dentist, very popular with his patients. But every Sunday night, his personality changed a little bit. When I was younger, we'd be sitting at home watching *60 Minutes* or the Sunday night NFL game, and I could see he was stressed about going to work Monday morning. He never said to me, "Danny, do something you love." But just watching him, I saw enough to say, "I want to do something I'll enjoy."

After more than three decades watching athletes up close, what's one thing you've learned that might surprise people?

They're not that different from any group of people you would put together. Some athletes have unbelievable focus, resolve and resilience—it's not just physical tools that get them there. But there are also many who may doubt themselves in their quieter moments. Some of them need a pat on the back. Some need a kick in the butt. It's just like any group of professionals.

We all, both media and the public, often forget that athletes have kids who get chickenpox or family members who are ill. They face difficult personal situations like any of us, but they can't always be at home because they're playing this sport. They may be different than us in some ways, but in many ways they're just like everybody else. That's important to consider while watching a game.

Speaking of athletes, you spent years working with a great ballplayer who became an even better broadcaster, Buck Martinez. When he announced his retirement, many people were deeply sad. What was it like working with him?

Buck had the ability to reach people on an emotional level—as much as any broadcaster I've ever known. It's a huge loss for us, as a network. But it's also a huge loss for me as his colleague. He could not have been more welcoming when I showed up as a 28-year-old in 1995. He helped me tremendously with TV, baseball, everything.

I've had a lot of really lucky breaks in my career, but working with Buck is top of the list. We just had this chemistry almost right away. You can't fake that. He was a great broadcaster, and he's an even better person.

How does objectivity play into your announcing?

When I do an ESPN basketball game between, say, Duke and North Carolina, it's a 50-50 broadcast. I'm neutral. But with the Jays, I'm the home team announcer, so my work will skew more towards the Jays because almost all of our audience are Jays fans. You'd be amazed how, if I talk about a guy from the visiting team for too long, I'll hear about it. But I will also be called a homer and an anti-Jays broadcaster in the same five minutes.

Some people are more objective than me, and others are bigger hometown announcers. I think it's silly to call a Vladimir Guerrero Jr. home run the same way I call one by a visiting player.

If you watch Matt Devlin, who does a fantastic job, do a Raptors game, he calls home baskets different than visiting baskets. If you listen to Joe Bowen, a Hall of Fame hockey announcer, he calls a Leaf goal differently than a goal by a visiting player.

Certainly there is some subjectivity or lack of objectivity. Maybe it's not even objectivity—it's just emotion in your voice.

Your son Ben is now in the business as the Jays' radio play-by-play announcer. What advice did you give him as he got serious about broadcasting?

I have four boys and they all know my story, the same one I just told you. Ben was just like I was as a kid. He had a million questions about sports and would travel with me on the road sometimes. By the time he was 12 or 13, he knew he wanted to be a broadcaster. He went off to Syracuse University, generally considered to be one of the best TV and radio programs in the United States. And now, a few years out of school, he's off to a great start, and I couldn't be happier for him.

How do you think the Jays will do this year?

Baseball is the most unpredictable of the professional sports. They're in great shape to be a contender again this year, but the American League East division is a monster. The Yankees and the Red Sox will be tough. The Orioles are much better this year, and you can never count out the Rays. So it's going to be a dogfight. But, if all goes well, I see the Jays as a playoff team. Once you're there, as we saw in 2025, anything can happen. ●

Interview has been edited for length and clarity.

Find out what a typical Jays game day is like for Dan Shulman at magazine.westernu.ca.

Nora Jean Nickson (Boyd), BA'62 (left), of Windsor, Ont., won gold at the 2025 U.S. National Senior Games in Des Moines, Iowa in July, capturing the women's doubles pickleball title in the 85–89 division with partner Marilyn Beckner. The biennial Games is among the world's largest multi-sport events for 50-plus athletes, drawing more than 12,000 participants.

Nickson's love of sport began at Western, where she played basketball and tennis. After graduation, she continued playing in basketball tournaments, eventually joining the Michigan Spirits Senior team in 2004. She switched to pickleball in 2013 and hasn't looked back, drawn by the camaraderie as much as the competition.

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From left: Zoology professors David McMillan and Helen Battle star in a televised lecture, a dissection demonstration filmed on Feb. 10, 1967. It was created to support second-year students in their zoology labs.

Helen Battle: A life of firsts

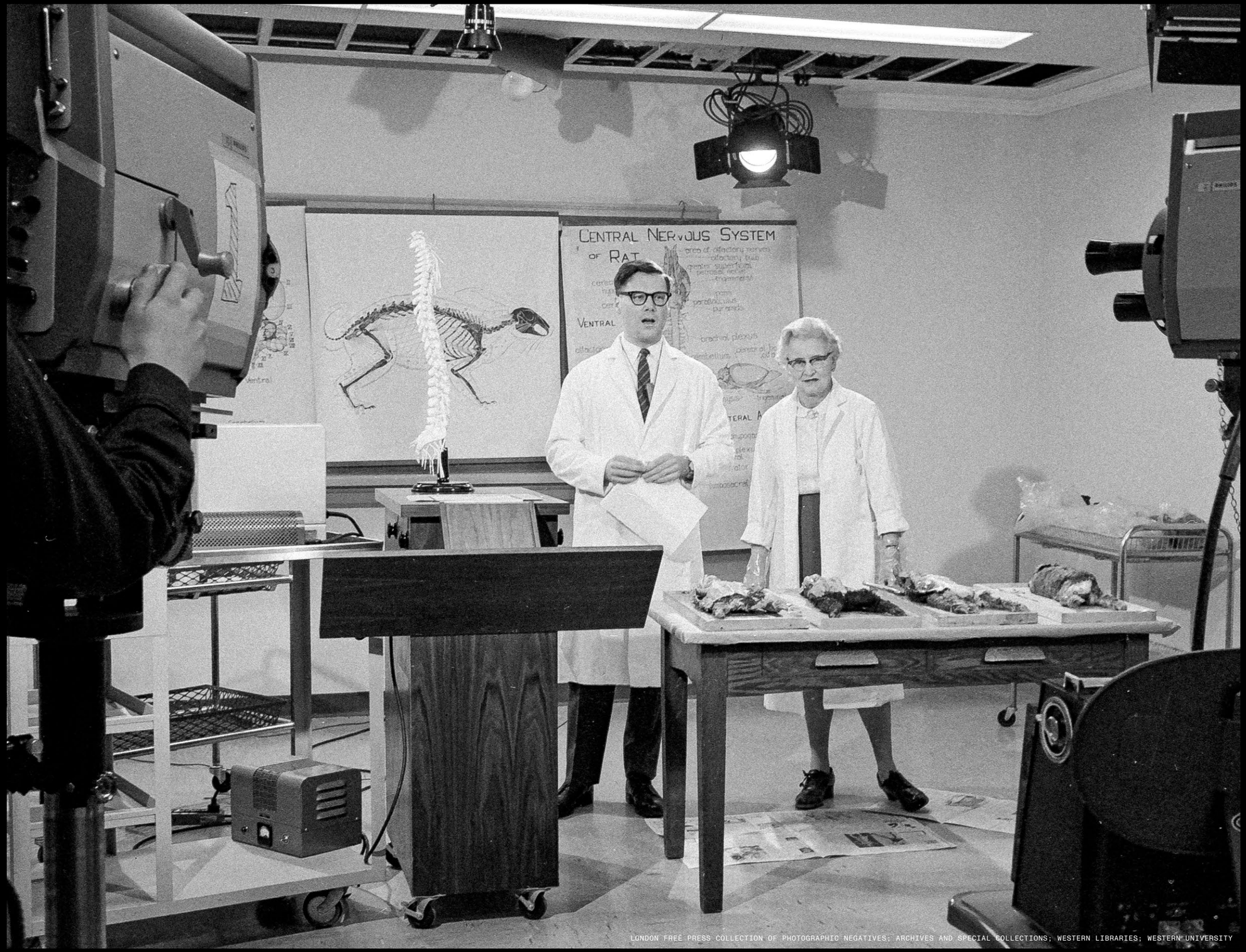
Helen Battle, BA'23, MA'24, LLD'71, broke barriers, shaped Western and left her mark on science in Canada.

Battle began studying at Western when she was just 16, earning her undergraduate degree in 1923 and becoming its first master's graduate in zoology. Her thesis was in the field of fish embryology, an area that fascinated her and in which she went on to make some of her greatest scientific contributions.

She was the first woman in Canada to earn a PhD in marine biology, from the University of Toronto. After her doctorate, Battle returned to her hometown of London, Ont., in 1929 and began teaching at Western, introducing lab methods to study aquatic life and using fish eggs to examine the effects of cancer-causing substances. She earned a full professorship in 1949 and later served as acting head of zoology.

Over more than 50 years, Battle taught roughly 4,500 students, many of whom became leaders in Canadian biology. She co-founded the Canadian Society of Zoologists in 1961 and was the first woman to be awarded the F.E.J. Fry medal for contributions to Canadian science. Even after retiring in 1967, she created one of Canada's first televised lecture series and received an honorary doctorate from Western in 1971.

Her research, conducted across Canada, the United States and England, produced 37 publications, and her legacy continues through the Helen Battle Scholarship, memorial lectures and the many students she inspired. ●



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We have a long history of collaboration, bringing together audiologists, scientists and engineers to innovate and solve problems, united by a shared focus on hearing loss.

Susan Scollie
Director, National Centre for Audiology at Western

From Sound on, starting on page 24

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