



OFFICE OF THE VICE PRESIDENT RESEARCH

ANNUAL REPORT: UNB Fiscal Year 2023-2024

November 2024



FROM THE VPR

How do you measure research?

More specifically, how do we measure the impact of our research community and its activities?

How do we paint the picture of accomplishment, relevance and potential? How do we tell the stories of research helping to create more positive presents and futures for our world?

And how do we recognize the contributions, efforts and work of our community in these accomplishments and impact?

With these questions, and with our UNB Toward 2030 strategic vision and goals in mind, we set to work revisiting the format of my office's annual report.

In addition to quantitative measures that detail some of our collective

success, you will find in this report a small selection of the great many stories we can point to as examples of the importance and impact of the work that we do, and of the drive and dedication of the people who undertake and support research here at UNB.

In addition to exemplifying research success within our institution, I also find these stories are important and inspiring reminders of how the work we do to conduct, support, mobilize and promote research matters to the world.

So, while this report is partly an account of our collective accomplishments, it is also a celebration of that success. And we have much to celebrate.

I believe we have much to be proud of here, and I know this sentiment is shared by our president

and many, many others. This report, and the information we relay herein, is a testament to this fact.

I hope you enjoy reading these stories as much as I have enjoyed hearing about them, and that you find in them the same proof of the commitment, activity, success and excellence of our research community.

To all of our researchers, a heartfelt thank you for your efforts this past year. I look forward to seeing the many successes to come in the year ahead.

Sincerely,

Dr. David MaGee
Vice President Research



RESEARCH ACTIVITY

UNB's research community is a constant hotbed of activity. From securing funding for the next revolutionary idea, to putting in place supports and infrastructure enabling these efforts, to recognizing and celebrating the people that make it all happen, UNB's faculty, staff and students are hard at work building the future.

Research Celebration Week

We hosted our [second annual Research Celebration Week](#), applauding our research community with an expanded calendar and increased support for unit-led events.

Indigenous research support

We introduced new support for Indigenous research at UNB, providing information to help guide our community to engage in this work in a good way. We are very grateful to Piliwita Hasuwin Cheyenne Joseph for her assistance.



UNB HAWC mission leads, Dr. William Ward (L) and Dr. Jeffery Langille (R). Their HAWC project was awarded CFI funding in March 2024.

Research funding

UNB researchers were successful in securing some \$7.75 million in tri-agency and CFI funding in two bundles, announced in [August 2023](#) and [March 2024](#). Funding supported work in areas including legal system

innovation and reform, aquatic ecology and conservation, the wellbeing of healthcare workers, satellite-based climate monitoring, cybersecurity, and much more, including [UNB's participation in the HAWC mission](#).

FUNDING AND SUPPORT

RESEARCH REVENUE

\$53.1M

CAUBO-standardized annual sponsored research revenue, FY 2023-2024

The Canadian University of Business Offices (CAUBO), provides a standardized profile for university finances that allows for comparison across the sector.

CAUBO reporting does omit some research-related funding, particularly funds that provide support for UNB's institutional research mandate rather than direct support of research projects.

TRI-AGENCY SUCCESS

\$14.6M

Total tri-agency grants, FY 2023-2024

UNB research activities were supported by a total of \$14,623,251 in the 2023-2024 university fiscal year.

This amount comprised \$1.5 million in scholarships for graduate students, \$3.35 million for UNB's Research Support Fund and the remaining \$9.77 million in direct research grants.

RESEARCH SUCCESS

425

Successfully-funded research proposals

Scholars across UNB submitted a total of 696 funding proposals during the 2023-2024 federal fiscal year.

The research teams collectively saw a success rate of over 60%, with 425 of these grant proposals being awarded funding.

Among those, 56 were funded by the tri-agencies, representing a nearly 50% success rate.

Across UNB, there were 1,828 active research accounts representing ongoing projects during the university fiscal year.

PROJECT PARTNERSHIPS

189

New funded research projects involving at least one external partner

Over the 2023-2024 federal fiscal year, UNB researchers started 189 projects with at least one external partner.

These partners include new startups, established companies of all sizes, community groups, NGOs, government departments and arm's length organizations. Partnerships were a mix of both established, longstanding ones undertaking a new phase of work, and newly established ones.

The projects range from research and development contracts to technology and research commercialization to new, collaborative, large-scale research initiatives.

NEW INFRASTRUCTURE

Recognizing the need for expanded research facilities, we acquired a new building for UNB in 2022. Renovations continue at the CORE Hub, which will provide space for a number of research labs and spaces for UNB's Faculty of Engineering.

In Saint John, ground was broken for the new [Health and Social Innovation Centre](#) in August. This 65,000 square foot facility will house UNB's Integrated Health Initiative.



RESEARCH EXCELLENCE

UNB's research impact and achievement is driven by its people: researchers who strive to deepen their understanding, to be among the leading minds in our world, to share this knowledge with their colleagues and our communities. Among our research goals, we seek to foster and grow a culture of celebration that recognizes the contributions of our people.

While there are a great many more who merit acknowledgment and celebration, some of those stories include:

Dr. Charles Sacobie was recognized as [Skitaqomiqewi Kcicihtuwinut](#), which translates to **Earth Knowledge Keeper**, or with the English title, Indigenous science scholar. This title reflects Dr. Sacobie's status as a keeper of both Indigenous and academic scientific knowledge in a ceremony.

Our 2024 **UNB University Research Scholar** award recipients were **Dr. Hilary Young**, professor of law and a leading expert on defamation law, and **Dr. Stephen E. Schryer**, a professor of English whose work highlights currents of American politics in literature, and sheds light on literature's impacts on social and political life.



Dr. Ken Kent

The **2023 UNB Award for Excellence in Research** was presented to **Dr. Ken Kent**, professor of computer science, at UNB's Encaenia in May.



Dr. Stephen E. Schryer



Dr. Hilary Young

Dr. Kent specializes in computer runtime technology and computer-aided hardware design research.

INTERNAL AWARDS:

The Fredrik and Catherine Eaton Visitorship programs support scholarly exchanges and enable UNB to partner with other universities or research institutions around the globe. They are valued at up to \$10,000 per award.

The 2023-2024 recipients of awards under our Fredrik and Catherine Eaton Visitorship programs were:

- Dr. Jason Bell, philosophy, who took up a visitorship at the Queen's University of Belfast School of History, Anthropology, Philosophy and Politics;
- Dr. Kush Bubbar, TME, at the Queen's University of Belfast School of Civil & Structural Engineering;
- Dr. Dan Kucerovsky, mathematics & statistics, at the Queen's University of Belfast Mathematical Sciences Research Centre;
- Dr. Scott Ronis, psychology, at the Queen's University of Belfast;
- Dr. Barry Blight, chemistry, at the University of Liverpool;
- Dr. Murray Littlejohn, humanities & languages, at Sorbonne Université.

Thanks to support from the Harrison McCain Foundation, we are able to offer funding to early career researchers through the Young Scholars award, and for the dissemination of knowledge through the Publication Grant.

The Harrison McCain Foundation Young Scholars recipients in 2023-2024 were:

- Dr. Emilie Lacroix, psychology;
- Dr. Martha Paynter, nursing;
- Dr. Maryam Kebbe, kinesiology;
- Dr. Zahra Khatami, electrical & computer engineering;
- Dr. Vanessa Morris, psychology;
- Dr. Taylor Steele, civil engineering;
- Dr. Hamed Asgari, mechanical engineering;
- Dr. Pooja Booluck-Miller, humanities & languages;
- Dr. Sarah Balcom, nursing & health sciences;
- Dr. Clodualdo Aranas, mechanical engineering;
- Dr. Saqib Hakak, computer science;
- Dr. Daniel Rea, computer science;
- Dr. Shabnam Jabari, geodesy & geomatics engineering;
- Dr. Hung Cao, computer science;
- Dr. Andrea Garner & Dr. Melissa Dockrill-Garrett, education.

Five scholars were also awarded the Harrison McCain Foundation Scholarly Book Publishing award:

- Dr. Stefanie Hunt-Kennedy, history, for the book *Crippling the Archive: Disability, History, and Power*;
- Dr. Greg Marquis, history and politics, for the book *Canada's Thin Red Line: A History of the Royal Canadian Mounted Police*;
- Dr. Heather Millar, political science, for the book *Fracking Uncertainty: Hydraulic Fracturing and the Provincial Politics of Risk*;
- Dr. Sarah-Jane Corke, history, for the book *Adventures in Intelligence History: Stories from the International Spy Museum and Beyond*;
- Dr. Jason Bell, philosophy, for the book *Cracking the Nazi Code: The Untold Story of Canada's Greatest Spy*.



(Above) Dr. Kush Bubbar (second from the right), whose QUB Visitorship led to a visit with the University of Edinburgh's FloWave Ocean Energy Research Facility team.

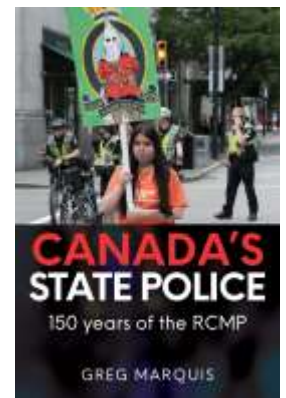
(Below) Dr. Scott Ronis explores Ireland during his QUB Visitorship.



Harrison McCain Foundation Young Scholars recipients, Dr. Pooja Booluck-Miller (above); Dr. Maryam Kebbe (left); Dr. Hamed Asgari (below).



Below: Dr. Heather Millar at her book launch (left); the cover of Dr. Greg Marquis' new book (right).



EXTERNAL RECOGNITION

Outside our institution, we saw researchers be recognized for their disciplinary leadership, including Dr. Kevin Englehart being [made a Fellow of the IEEE](#) in recognition of his groundbreaking work in upper limb prosthetics.

Dr. Thierry Chopin was recognized with an Aquaculture Association of Canada Lifetime Achievement Award in May.

Twenty-seven UNB researchers were also recognized in Stanford's [Top 2% Scientists](#) list for the 2022 calendar year, published in October 2023. The list is based on bibliometric information drawn from Elsevier's databases.

Two UNB graduate students were also finalists in tri-agency competitions that seek to broaden awareness, excitement and mobilization of research.

Natasha Hynes was a finalist in the 2023 [NSERC Science Exposed contest](#), organized by the Natural Sciences and Engineering Research Council and devoted exclusively to images of scientific research, in all fields of study.

Taylor MacAulay was a finalist in the [2024 Social Sciences and Humanities Research Council \(SSHRC\) Storytellers competition](#). The challenge "asks postsecondary students to show Canadians, in up to three minutes or 300 words, how social sciences and humanities research is affecting our lives, our world and our future for the better."



Dr. Kevin Englehart



Taylor MacAulay delivers her Storytellers presentation at an event held during the 2024 Science Writers and Communicators of Canada conference.

Natasha Hynes' Science Exposed submission



PEOPLE AND INSTITUTES

RESEARCH CHAIRS

31

Active research chairs during the 2023-24 federal fiscal year

11 Canada Research Chairs

20 Other funded chairs

The foundation of UNB's research ecosystem is composed of exceptional faculty and graduate students conducting leading research enabled by our world class research institutes, centres and labs.

Research chairs, including Canada Research Chairs (CRCs), contribute to that ecosystem and are used strategically to seed new research initiatives and establish novel areas of growth, as well as to bolster and further enhance existing research strengths within our institution. Chairs represent world-class expertise who build up UNB's research excellence and our ability to make positive change in our province, across Canada and around the world.

NEW AND RENEWED RESEARCH CHAIRS

In 2023-2024, we welcomed one new industry-funded research chair: Dr. Hamed Asgari joined UNB as the Lockheed Martin Research Chair in Additive Manufacturing. His arrival bolstered an existing, high-performance group at UNB's Marine Additive Manufacturing Centre of Excellence.

We also saw two existing research chairs renewed: Dr. Ali Ghorbani, one of UNB's 13 Canada Research Chairs, was renewed for a second term as a Tier 1 Canada Research Chair in Cybersecurity, which will continue until April 2030.

Thanks to the philanthropic generosity of the Catherine and Fredrik Eaton Charitable Foundation, the Fredrik S. Eaton Chair in Canadian Army Studies, held by Dr. Lee Windsor, was made a permanently-endowed chair.



Dr. Hamed Asgari,
Lockheed Martin
Research Chair in
Additive Manufacturing



Dr. Lee Windsor, Fredrik
S. Eaton Chair in
Canadian Army Studies



Dr. Ali Ghorbani,
Canada Research Chair
in Cybersecurity

Two CRC terms also ended during the 2023-2024 federal fiscal year: The CRC in Atlantic Canadian Studies, and the CRC in Pulp and Paper Science and Engineering.

RESEARCH FACULTY

In the 2023-2024 fiscal year, UNB's research community included 449 professoriate stream faculty and research associates.

Of those, 88 — nearly 20% — are early career researchers in the first five years of their appointment at UNB.

449

Active research faculty

POSTDOCTORAL FELLOWS

140

Active postdoctoral fellows,
UNB FY 2023-2024

In the 2023-2024 university fiscal year, we had 140 active postdoctoral fellows at UNB. Approximately 90% of UNB's postdoctoral fellows come from outside of Canada.

RESEARCH INSTITUTES

21

Constituted research centres and institutes

UNB's research centres and institutes represent areas of significant institutional strength in specific research areas. They support and enable world-class, discipline-leading research by bringing together scholars from across the institution and around the world.

During the 2023-2024 UNB fiscal year, we saw the launch of UNB's latest such centre, the [Research Institute for Data Science and Artificial Intelligence](#), under the leadership of interim director Dr. Paul Cook, a professor of computer science and natural language processing expert.

[SPECTRAL](#), the Spatial Computing Training and Research Lab, was also constituted as a Centre in early 2024. The elevation to a centre, led by Dr. Scott Bateman, reflects the intensity and strength of activity in this area.

A full list of centres and institutes is [available on our website](#).

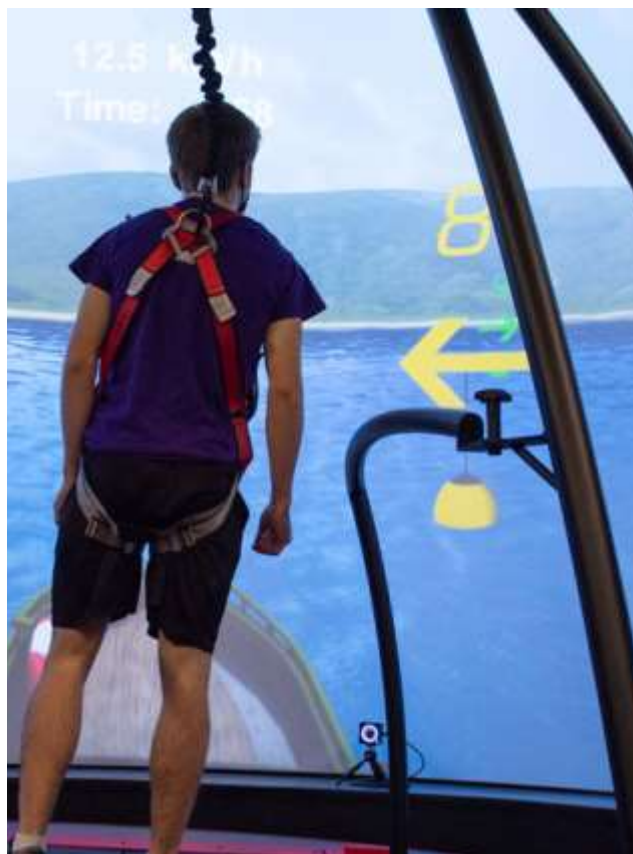
GRADUATE STUDENTS

978

Research-based graduate students

Among UNB's 2,000-strong graduate student population, nearly half are engaged in research-based programs (48.8% in FY 2023-2024).

These research-oriented graduate students include all 441 students enrolled in doctoral programs, and 537, or more than one-third of all, master's students, for a total of 978 students.





RESEARCH IMPACT

The work that goes on here at UNB changes lives and changes the world. The impact of our community's research is felt in academia, where numerous publications and presentations help share knowledge; through knowledge mobilization and transfer activities, which help research reach the public and decision makers; and also in industry and community partnerships, where organizations and researchers both gain from mutually beneficial collaborations.

Among these partnerships, the Mactaquac Aquatic Ecosystem Study was celebrated with an award ten years in the making. It was [awarded an NSERC Synergy Award for Innovation](#) in recognition of its ongoing, decade-long research collaboration between UNB and NB Power supporting the future of New Brunswick's primary hydroelectric facility.

Energy research partnerships were also in the spotlight for UNB's Centre for Nuclear Energy Research, which established new or renewed partnerships this past year with [Kinectrics](#), and with [Canadian Nuclear Laboratories and Atomic Energy Canada Limited](#).

We also saw a number of partnerships flourish in support of health and wellbeing research.

Our Integrated Health Initiative partnered with AstraZeneca to host the [inaugural AstraZeneca Integrated Health Initiative Research Symposium](#) in April.

The research team responsible for a Health Canada-funded project on [access to abortion services in New Brunswick](#) released their findings in November 2023, providing a report as well as a number of other accessible summary documents to help decision makers and others

understand the state of surgical abortion access in the province.

iHeal, a first-in-Canada mobile and web app for women experiencing intimate partner violence, was [launched in November 2023](#). The app, which provides users with free, secure and personalized ways to "stay safe and healthy while getting their basic needs met and reclaiming their power," was jointly developed by a research team led by Western University that included UBC and UNB. UNB's contribution was led by Dr. Kelly Scott-Storey, a professor of nursing who is also heavily involved in the Fredericton Downtown Community Health Centre and the Muriel McQueen Fergusson Centre for Family Violence Research.

New Brunswick became [the first pilot jurisdiction for the GlobalChild human rights monitoring platform](#). Working with the Government of

New Brunswick, Dr. Ziba Vaghri and her team have begun data collection for the platform, which was built in partnership with a global community of experts. The pilot is a shared undertaking with the New Brunswick Office of Child and Youth Advocate.

Children's wellbeing and success was also the subject of a partnership between UNB's New Brunswick Institute for Data, Research and Training, Indigenous Research Chair in Nursing Dr. Jason Hickey, and the Under One Sky Friendship Centre. Together, they have been [investigating the medium- and long-term benefits of their Aboriginal Head Start in Urban and Northern Communities program](#) for children and their families.

INTELLECTUAL PROPERTY

In the 2023-2024 government fiscal year, 11 disclosures were made to the Office of Research Services.

Additionally, by leveraging past disclosures and assignments, four new patents were granted to UNB inventors over the same year, and 10 inventions were licensed.

This licensing and assignment activity represents one of the myriad ways research conducted at UNB makes a demonstrable impact on our world. It represents the transfer of knowledge created through academic research into products, solutions and services that can be leveraged by business and community organizations.

INTELLECTUAL PROPERTY HIGHLIGHT: Indian patent granted to a UNB researcher

Among this year's milestones, we find Dr. Alli Murugesan's continued successes in her nature-inspired cancer fighting drugs.

In February 2024, Dr. Murugesan, along with UNB's Dr. Tony Reiman and Université de Moncton professor Dr. Mohamed Touaibia, was granted a patent in India, one of the world's largest patent jurisdictions.

This is Murugesan's fifth awarded patent, with another dozen pending across five patent families.



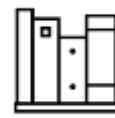
PUBLICATIONS

SCHOLARLY OUTPUTS AND OPEN ACCESS

Scholarly publications, including journal articles, conference papers, books and book chapters, and similar, represent some of the primary ways that research and knowledge are disseminated into the broader world.

This is particularly true with Open Access publications, which are made available either directly through the publisher, or through institutional repositories like [UNB's Scholar Research Database](#).

However, we recognize that these present only a partial view of the activities undertaken by our researchers and the impact of their work. We also recognize that Scopus, while representing the single most comprehensive source of data, reflects a certain STEM emphasis due to Elsevier's publishing focus.



1,020

total scholarly outputs captured in Scopus, for UNB Fiscal 2023-2024

738

of these scholarly outputs were journal articles



37%

of these articles were published under an Open Access license

INTERNATIONAL COLLABORATION

In the past year, UNB-affiliated researchers co-authored papers with scholars from 78 different countries around the

world, demonstrating the extensive reach, engagement, and exchange of ideas by our scholars.

