



EARTH & SPACE SCIENCE & ENGINEERING

CIVIL ENGINEERING

INTERDISCIPLINARY IMPACT

MECHANICAL ENGINEERING

ELECTRICAL ENGINEERING & COMPUTER SCIENCE

LASSONDE SCHOOL OF ENGINEERING ANNUAL IMPACT REPORT

Sept. 1, 2022 to Aug. 31, 2023



Explore how we empower creators to engineer innovative solutions and address global challenges



LASSONDE BY THE NUMBERS

10,743

Lassonde alumni

5,180

students —a 269% increase since 2013 — from 106 countries

4

departments offering 12 undergraduate and 7 graduate programs

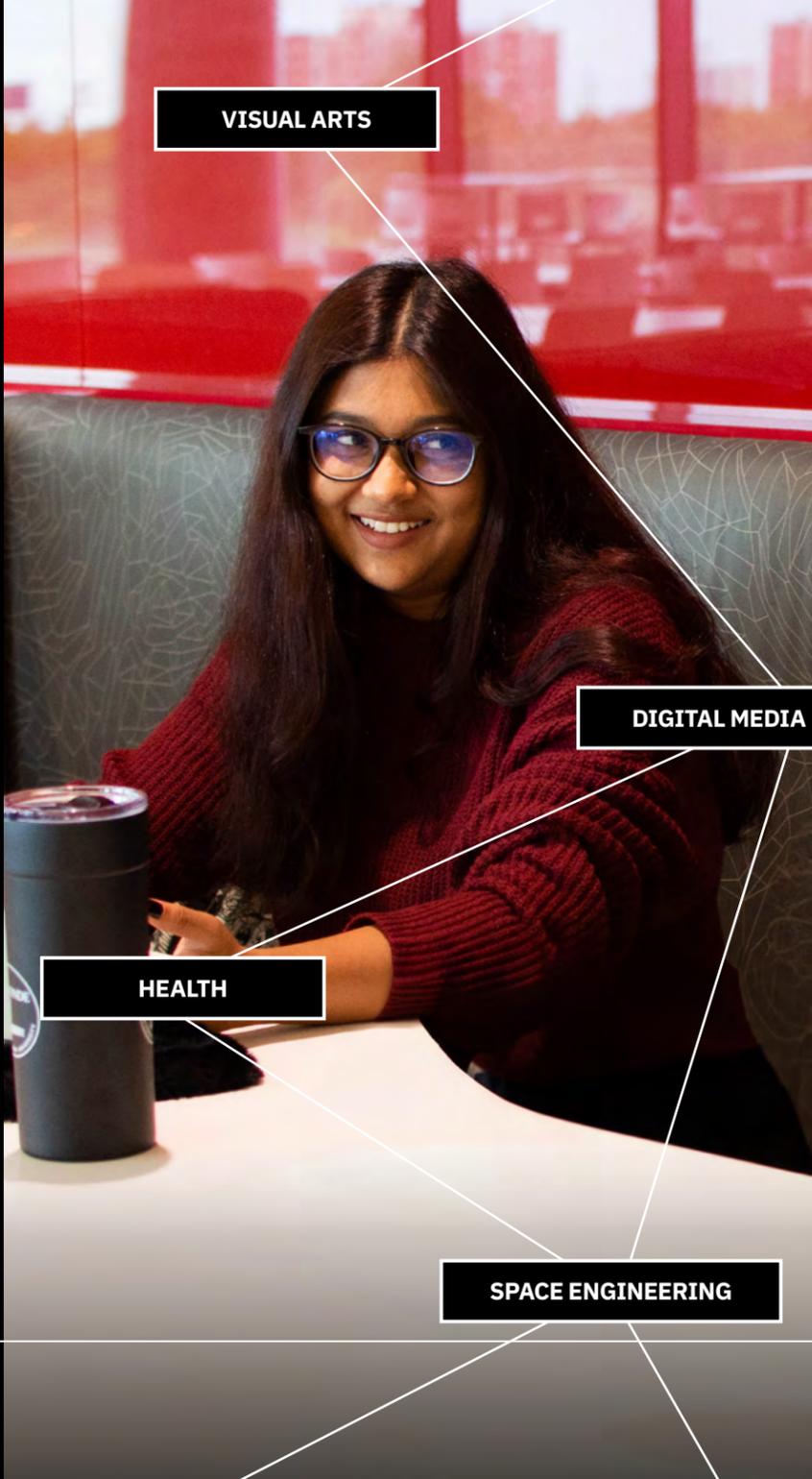
4

organized research units

143

full-time faculty members

VISUAL ARTS



DIGITAL MEDIA

HEALTH

SPACE ENGINEERING

RANKINGS

Times Higher Education 2024

201-250 in Computer Science
401-500 in Engineering
401-500 in Physical Sciences

QS 2023

251-300 in Computer Science & Information Systems
451-500 in Electrical & Electronic Engineering
NEW! 451-500 in Mechanical, Aeronautical & Manufacturing Engineering
401-500 in Natural Science
501-530 in Engineering & Technology

ShanghaiRanking 2023

101-150 in Telecommunications Engineering
201-300 in Computer Science & Engineering
201-300 in Electrical & Electronic Engineering
301-400 in Atmospheric Science
NEW! 301-400 in Mechanical Engineering
401-500 in Earth Science
401-500 in Physical Sciences
NEW! 401-500 in Environmental Science & Engineering

Maclean's Ranking 2024

18 in Computer Science
(Canadian Institutions)

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RANKINGS

425

contributions Lassonde faculty members made to academic journals, conferences and books (SciVal)

Top 2%

Stanford University World's Top 2% Cited Scientists 2023, 22 Lassonde faculty on the career-long list, 19 faculty on the single-year list



4th

in Canada, and 1st in Ontario for proportion of publications with inter-institutional collaboration in physical sciences and engineering (2023 Leiden Ranking)

9th

in Canada and 4th in Ontario for proportion of publications with inter-institutional collaboration in mathematics and computer science (2023 Leiden Ranking)

6th

in Canada and 3rd in Ontario for proportion of publications by women in mathematics and computer science (2023 Leiden Ranking)

\$15M

research funding generated

ARTICLES



Lassonde Dean Jane Goodyer awarded Honorary Doctorate for advancing engineering education and women in STEM



York University's Lassonde School of Engineering introduces inaugural cohort of Canada's first fully work-integrated degree program

New Lassonde facility explores how climate conditions affect the behaviour of infrastructure



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FAST FACTS/ STATS

3,317%

increase in social media impressions, for a total of 49.5M

614%

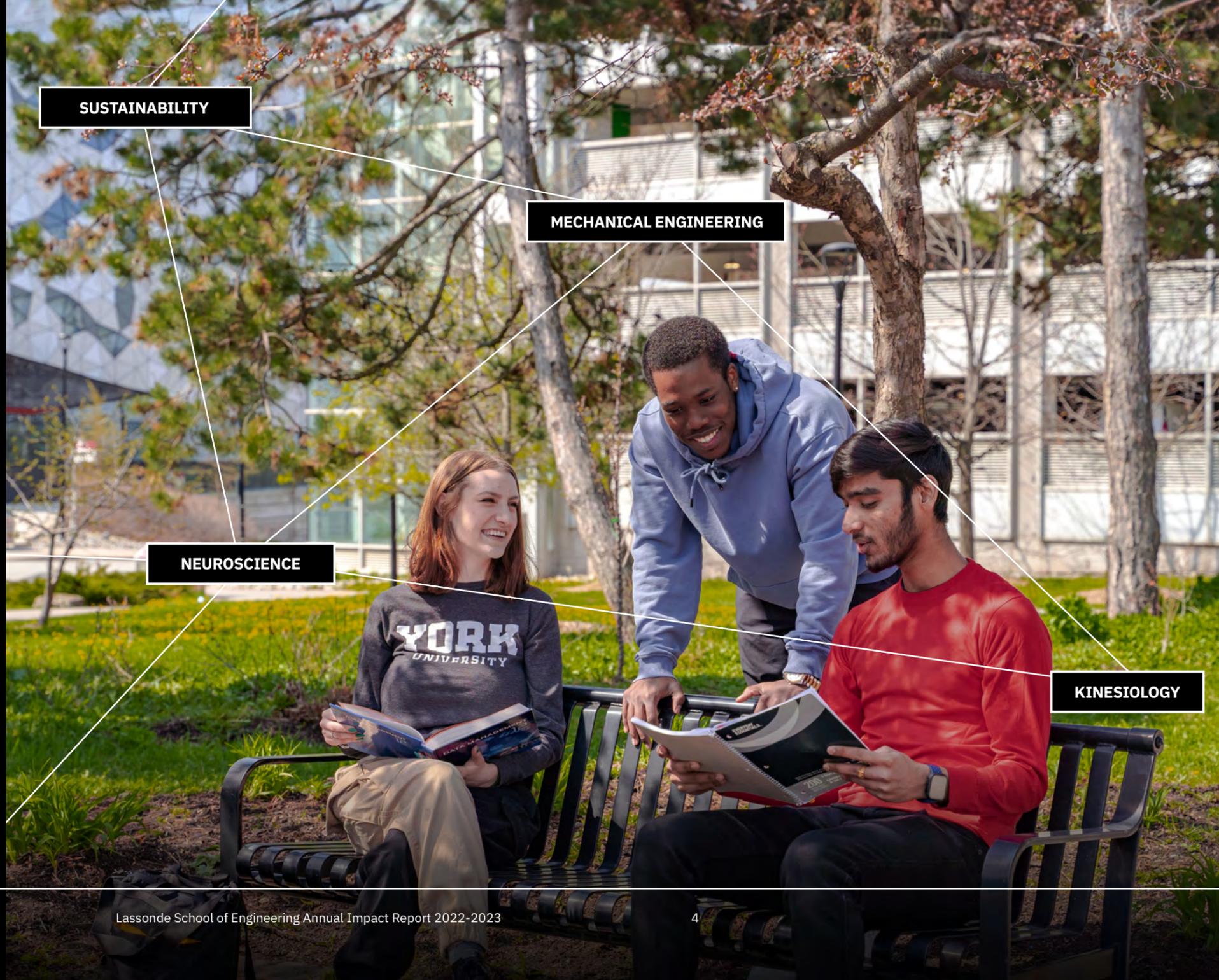
increase in social media engagement, up to 432,421

2,315%

increase in video views to 2.3M across all platforms

208%

increase in total website page views to 2.5M



SUSTAINABILITY

MECHANICAL ENGINEERING

NEUROSCIENCE

KINESIOLOGY

RANKINGS/ NOTEWORTHY FACTS

2,229 Lassonde students received **\$8M in awards**, scholarships, and bursaries from York that supported their success through funding and recognition of their achievements.

919 undergraduate students received over **\$2.3M** in awards, scholarships, and bursaries from Lassonde, which made a significant difference in their lives by reducing the cost of education and lightening the financial burden of student loans.

\$58+M donated to Lassonde since its inception, which has opened doors to higher education access and completion, particularly for those from underserved communities.

14 Lassonde Scholars were chosen for their academic excellence, passion for extracurricular activities and dedication to making a positive social impact.

\$2.2M in new funding supporting students, research and programs.

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VOICES OF LASSONDE

Jane Goodyer

Dean, Lassonde School of Engineering

The challenges we face in engineering and science are dynamic and complex. Yet, it is our unwavering commitment to innovation, discovery and progress that fuels our resolve to overcome these obstacles and create a better future.

At Lassonde, our dedication to advancing interdisciplinary research has never been stronger. As you explore this Annual Impact Report, you'll see many examples of the ways we've collaborated with faculty across York University and with partners at institutions worldwide over the past year.



Reza Mirhadi

Undergraduate student (final year)
Mechanical Engineering



What I love most about Lassonde is how academic and extracurricular opportunities complement the School's sustainable vision and help create well-rounded engineers. The stories and achievements in the 2022-2023 Impact Report are a testament to the way Lassonde supports students in their journey.

Praise Ayorinde

Graduate, Bachelor of Computer Science and minor in Psychology (2019), Software Development Manager, Amazon



As Lassonde showcases its impact in the 2022-2023 academic year, I have a special opportunity to reflect on my own time at the School. I feel a sense of pride knowing my journey began at an upstanding University that is making a difference through community outreach, research advancement and interdisciplinary, inclusive initiatives. It's these remarkable programs and opportunities that initially drew me across the world to Lassonde.

LEADING IN CREATING SOLUTIONS FOR A JUST AND SUSTAINABLE WORLD



SPACE SCIENCE

CHEMISTRY

COMPUTER SCIENCE

EARTH & ATMOSPHERIC SCIENCE

Lassonde is a hub for innovation and solutions-driven research designed to advance knowledge, improve lives and create a better world. With extraordinary challenges ahead requiring intricate solutions, our skilled researchers engaged in unique collaborations, blending diverse areas of expertise to develop impactful solutions across numerous sectors, including healthcare, transportation, space engineering, water resource management and more.

FAST FACTS/ STATS

115

Lassonde research publications aligned with **14 UN SDGs** (SciVal): **#7 (Affordable and Clean Energy)**, **#9 (Industry, Innovation and Infrastructure)**, and **#3 (Good Health and Well-Being)** were the top 3 SDGs associated with Lassonde publications

34.5%

of Lassonde research publications featured in the **top 10%** of the most-cited journals by CiteScore

9

patents filed, **2** issued

2

new Organized Research Units established: Mobility Innovation Centre (MOVE) and Manufacturing, Technology and Entrepreneurship Centre (MTEC)

ARTICLES



38 Lassonde faculty members involved in first-of-kind research initiative funded through the Canada First Research Excellence Fund

■ UN SDG 17

Using a virtual reality sandbox as a teaching tool

Lassonde faculty leading innovative solutions for cleaner water, more sustainable world

Lassonde Professor receives NFRF grant to explore 3D and 4D printing in space

■ UN SDG 9

Creating a future where everyone has a chance to soar: Lassonde research is helping make astronaut training more inclusive and effective

■ UN SDG 5

AI better than human eye at predicting brain metastasis outcomes

■ UN SDG 3

Lassonde Professor is fighting clickbait and Twitter bots with Artificial Intelligence

■ UN SDG 16



Life on MARS: York U Team heads north to look for clues to Martian mystery

■ UN SDG 13

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EMPOWERING OUR PEOPLE WITH PERSPECTIVES, TOOLS AND KNOWLEDGE

Lassonde empowers creators to grow, learn and make a difference by offering encouragement and support together with endless educational, professional and research opportunities.

In 2022-23, Lassonde empowered faculty members to take on executive positions in world-class research institutions. We empowered our student researchers to pursue exciting opportunities and lead cutting-edge projects. We celebrated the accomplishments of our community and saw incredible student successes.

FAST FACTS/ STATS

5

Canadian Academy of Engineering Fellows

7

Engineering Institute of Canada Fellows

5

Royal Society of Canada Fellows and members

80

undergraduate research positions through NSERC USRA and Lassonde Undergraduate Research Awards (LURA)

18

fellows of engineering/science organizations, including: Canadian Engineering Education Association, IEEE, CSCE, ASME, CSME, AAS, CASI, AGU, SAEng.

ARTICLES



Lassonde's BEST Program Launches 'Bridge to Startup' Initiative, Empowering Student Entrepreneurs

Lassonde Faculty recognized for their accomplishments in research and impact

Lassonde Professor Jinjun Shan is elected Fellow of the Canadian Academy of Engineering



Introducing the 2022 Lassonde Scholarship Recipients

Women in Engineering Day 2023: Lassonde faculty members share their exceptional journeys

Graduate students at Lassonde are personifying Black Excellence in Mechanical Engineering

■ UN SDG 10

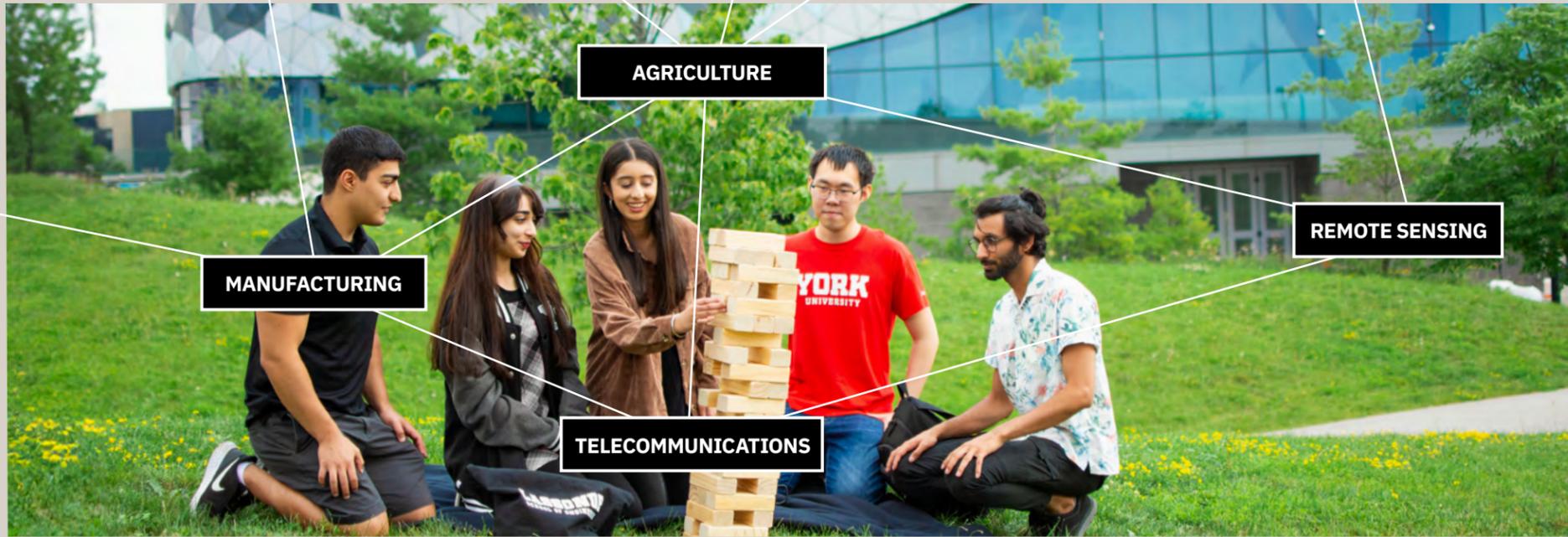


Lassonde hosts first-of-its-kind, interdisciplinary NSERC CREATE Annual Summit

Paulina Lau Scholar from Lassonde reaches for Mars

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CREATING OPPORTUNITIES AND A WELCOMING COMMUNITY

At Lassonde, we're dedicated to nurturing a diverse community of students who, together with their faculty, transform their ideas into tangible solutions that leave a positive mark on both local and global scales. That's why Lassonde is fully committed to dismantling systemic barriers in STEM. We recognize that traditional stereotypes, unequal access to opportunities, implicit biases, and a lack of diversity impedes our collective progress.

In 2022-23, we've worked hard to provide our students with incredible opportunities and a welcoming community. This year our efforts were recognized with the k2i academy receiving the Minister's Award of Excellence in the category of Equality of Opportunity.

FAST FACTS/ STATS

47,414

advising related interactions and touch points, including 3,951 meetings with students via drop-in advising

2

projects received Lassonde EDI seed funding to build a culture of equity, diversity and inclusion at the School

758

students took part in BEST experiential education activities, working on 148 projects addressing UN SDGs

4

BEST startups raised \$4.5M in seed funding

ARTICLES

York University's Lassonde School of Engineering receives provincial funding to launch STEM program for Black youth

■ UN SDG 4

Transforming classrooms into arcades: Professor Maqsood is developing games to enhance student learning

■ UN SDG 4

Lassonde connects first-generation students with alumni at a professional networking event

BEST Program concludes first term of entrepreneurial Work-Integrated Learning (e-WIL)

York satellites headed to space

■ UN SDG 4

A summer of research: Lassonde undergraduate researchers present their innovative work

■ UN SDG 3, 9, 11



Dreaming Together at the Sudbury Neutrino Observatory (SNOLAB)

■ UN SDG 4, 10

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The k2i academy is an innovation sandbox where diverse communities and collaborators connect, engage and design solutions to systemic barriers to STEM opportunities, education and careers for underrepresented groups, including women and Black and Indigenous youth.

The academy brings STEM to life by working alongside school boards to offer science and engineering programming in classrooms, providing innovative work-integrated learning experiences, and partnering with community organizations to provide unique, hands-on STEM opportunities.

k2i ACADEMY'S IMPACT SINCE 2020:

\$6M+ in funds raised to support k2i academy programs

\$27,000+ students, teachers and families served through more than **175,000 hours** in k2i academy education

\$2.725M in support received from the Ontario Ministry of Education

400+ high school students employed in work-integrated learning opportunities, with 99% earning a high school credit

130+ undergraduate STEM students were able to work as k2i mentors

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Over the past year, Lassonde's Education Innovation Studio (LEIS) has continued to lead the way in reimagining teaching and learning and breaking down barriers to learning. LEIS has done groundbreaking work with faculty and is celebrating several firsts.

LEIS has revolutionized work-integrated learning in Canada by launching the Digital Technologies program, exemplified by the creation of the Foundation Block – a three-week, in-class experience in the first year, enabling students to excel academically and professionally. This unique platform fosters networking, collaboration, team building, and familiarization with technology and work environments, all while instilling a balance between work and study.

LEIS has co-created and launched an innovative first in Ontario, an Engineering block model that unifies experiential education with micro-credentials and just-in-time learning approaches. They have also launched a novel learning experience design model that all York University online and hybrid courses can leverage.

Through immersive experiences, from interactive workshops to virtual escape rooms, LEIS has not only enhanced student engagement but also reshaped pedagogical and epistemological approaches.

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BUILDING SUCCESS THROUGH PARTNERSHIPS

Cultivating and maintaining meaningful partnerships is a key objective at Lassonde. By creating an environment rooted in interdisciplinary partnerships, Lassonde has harnessed the capacity to transform innovative ideas and bring research to new and unimaginable heights. In 2022-23, we've started and continued work with educational institutions, healthcare associations, government organizations, businesses, and community and industry partners, to collaboratively develop solutions to the world's greatest challenges.

Our researchers embodied teamwork through various partnerships, our k2i academy worked with numerous ministries, school boards and organizations to bring STEM programming to underrepresented youth in creative ways, and we had a number of partners, including Kenaidan Contracting Inc., establish bursaries to help advance student success at Lassonde.

FAST FACTS/ STATS

425

contributions by Lassonde faculty members to academic journals, conferences, and books; almost 50% were collaborations with international research partners, and an additional 20% involved at least two other institutions in Canada

50+

organizations in the public and private sectors with which Lassonde has funding partnerships

67

different countries/regions of origin of global scholars with whom Lassonde faculty published research from 2018-2023

ARTICLES



k2i breaks down barriers to STEM education with \$400k donation from 407 ETR

■ UN SDG 17

Lassonde's k2i academy introduces teacher resources for de-streaming Grade 9 Science in Ontario

■ UN SDG 4, 10

Lassonde names Children, Youth & Social Services I+IT Cluster 2022 Co-op Employer of the Year

Lassonde hosts Humanitarian Response Network of Canada's Triannual Meeting and Sphere Training

■ UN SDG 17

Simulating complex on-road wind and turbulence conditions in a wind tunnel to improve the design of automobiles

■ UN SDG 9

Lassonde Professor supports research that is turning sunlight into fuel

■ UN SDG 7, 11, 17

Lassonde hosts Arctic Water Research Symposium

■ UN SDG 6, 17



Kenaidan commits \$250,000 towards Lassonde School of Engineering bursary

■ UN SDG 17

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LASSONDE SCHOOL OF ENGINEERING

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LAND ACKNOWLEDGMENT

York University recognizes that many Indigenous Nations have longstanding relationships with the territories upon which York University campuses are located that precede the establishment of York University. York University acknowledges its presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been caretaken by the Anishinabek Nation, the Haudenosaunee Confederacy, and the Huron-Wendat. It is now home to many First Nation, Inuit and Métis communities. We acknowledge the current treaty holders, the Mississaugas of the Credit First Nation. This territory is subject of the Dish with One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.

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