

# Canada's universities:

## The source of Canada's global AI leadership

### **Canada's global leadership in AI is powered by its universities**

— the source of the research, talent and partnerships driving innovation across every sector. University researchers built the foundations of modern AI and continue to advance breakthroughs that boost health, sustainability and productivity.

As the government's AI taskforce works to develop new AI strategy, it should look to Canada's universities as essential partners in boosting the country's global AI leadership and ensuring that all Canadians can benefit from AI discoveries and adoption.

By investing in research infrastructure and supporting university-based talent, Canada can secure its competitive edge and ensure AI innovation strengthens our economy and improves life for all Canadians.



**Universities** **Universités**  
**Canada.** **Canada.**

A graphic featuring the letters "AI" in a large, white, sans-serif font, centered within a white hexagonal outline. The background is a dark blue and purple gradient with glowing circuitry lines and a hand holding a glowing orb at the bottom, suggesting a futuristic or technological theme.

AI

# Background: Canada's global leadership in AI research

Canada's global edge in AI rests on decades of fundamental university research in neural networks and reinforcement learning. The country is home to leading AI researchers, including the three "godfathers" of modern AI: Nobel Prize winner and University of Toronto Professor Geoffrey Hinton, Université de Montréal Professor, Yoshua Bengio and University of Alberta Professor, Richard Sutton.

In 2022, Canadian researchers published the highest number of AI papers per capita in the G7<sup>1</sup>. Universities across the country are building on these foundations to refine the capabilities of AI and integrate academic expertise in AI with the evolving needs of industry and society.

Many are also partnering with Canada's three leading AI institutions — Mila, Vector and Amii — to generate AI breakthroughs in areas from health to energy efficiency and industrial productivity.

## Real-world impact on Canadians



- Researchers at Simon Fraser University have developed an AI-powered irrigation device to increase growing efficiency for farmers who operate indoor greenhouses<sup>2</sup>.



- At Polytechnique Montréal and McGill University research have commercialized an AI powered device called SENTRY<sup>TM</sup> to detect the difference between healthy and cancerous tissues during neurological surgeries minimizing the need for further invasive procedures. The technology is helping patients right now as it is being used in up to five surgeries per week<sup>3</sup>.



- Researchers at the University of New Brunswick and their industry partners have created an AI-powered app to detect changes in seniors' health and notify patients and family when they need medical help<sup>4</sup>.

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## Supporting industry needs

Canada's universities are partnering with government and industry to develop impactful AI research. Universities offer bootcamps, mentorship programs and dedicated applied research support to industry stakeholders. These collaborations blend deep academic expertise on AI from universities with industry needs.

Canada's universities and three leading AI institutes — Mila, Vector and Amii — have strong models for academic-industry collaboration. Collectively, the three institutes are responsible for 453 partnerships with consultancies, start-ups, academic institutions and private firms<sup>5</sup>.

- Mila's Applied Research Program enables industry partners to tap into world-class AI expertise to drive innovation and improve operational efficiency. For example, researchers at Mila collaborated with the airline charter company Nolinor Aviation to enhance its safety incident reporting process using machine learning. The large language model developed through this project analyzes information from employee safety reports and alerts staff when further investigation may be warranted. With support from Mila's researchers, Nolinor Aviation reduced its safety incident investigation time by 80% — from 40 hours of manual work to just 5<sup>6</sup>.



- Through its FastLane program, the Vector Institute helps SMEs and start-ups take full advantage of AI by providing them with technical support and academic expertise. For example, the FastLane program hosts a Privacy-Enhancing Techniques Bootcamp, which gave health care start-up A.I. Vali the tools to train an AI model for their cancer detection device without sharing patient data between hospitals. Support from FastLane has enabled A.I. Vali to innovate in the health care sector while ensuring that its AI model is used responsibly<sup>7</sup>.
- Amii's team of researchers helped Instrumar, a Newfoundland-based company that produces synthetic fibers for industrial applications, improve the quality of its products through the use of AI. Instrumar worked with a lead Amii researcher and an intern to incorporate machine learning into its quality assurance process, enhancing client satisfaction and operational efficiency.

Collaborations between university and industry show how AI research helps businesses across Canada — from coast to coast<sup>8</sup>.

Canada's universities and the three major AI institutes already have a strong foundation in developing industry-university partnerships. Canada needs to scale up university-industry partnerships to unlock the commercial potential and social benefits of AI discoveries.



# Helping Canadians to thrive in the age of AI

The widespread adoption of AI will fundamentally change Canada's workforce. Already, **nearly 3 in 10 Canadians report using AI tools in the workplace<sup>9</sup>** and Statistics Canada estimates that around **60% of occupations have high exposure to AI<sup>10</sup>**.

A university education helps people secure good jobs, earn strong salaries and build better futures.

Bachelor's graduates earn on average

**24% more**

more than the national average income<sup>11</sup>.

**88%**

of students say their courses will help them to secure a job in their field of study<sup>12</sup>.

In the age of AI, a university education also gives Canadians the skills to adapt to new AI technology in the labour market. **According to estimates by Statistics Canada, the majority of jobs that require a bachelor's degree or higher — including doctors, nurses, teachers and electrical engineers — have high complementarity with AI<sup>13</sup>. This means that AI will augment these jobs rather than replace them.**

With over 50 AI-related programs across the country ranging from micro-credentials to doctorates Canadian universities are preparing workers with the AI skills that can augment human decision making and create a more productive economy.



## Building public trust and protecting Canadian sovereignty

Globally, Canada has one of the lowest levels of public trust and optimism in AI.

Only 34% of Canadians are willing to trust AI and 79% are concerned about the possible negative outcomes of AI<sup>14</sup>.

To build public trust Canada must ensure that its approach to AI is ethical by design and is developed with considerations for user privacy, data protection and data sovereignty.

Universities are key partners in this work as they bring together interdisciplinary teams of experts in engineering, business, health sciences, education, computer science and social science to tackle these issues. Many institutions are already doing this work, including Ontario Tech's School of Ethical Artificial Intelligence and the University of Toronto's Schwartz Reisman Institute for Technology and Society.

Canada must also ensure that its domestic AI infrastructure is anchored in public facilities, including universities. This will help to address concerns around data sovereignty and ownership of compute that erode already low levels of public trust in AI. With their existing academic expertise in AI universities are ideal venues to host public compute infrastructure. Placing AI infrastructure in Canadian universities will also help to reduce the reliance on foreign compute technologies, an important step in strengthening public trust.

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# A strong foundation at risk without sustained investment

Canada's leadership in AI research is globally recognized — but it is at risk without sustained and strategic investment in the country's research ecosystem.

Currently, Canada's rate of R&D funding is second to last in the G7<sup>5</sup>. In contrast, the United States, the European Union and China are investing in AI at a scale Canada has yet to match. These jurisdictions are ensuring stable funding, attracting global talent and linking innovation directly to economic and security strategies.

AI development is a global endeavour. While Canada continues to punch above its weight in AI research, it relies on partnerships with like-minded countries to advance breakthroughs in machine learning and neural networks. Without predictable research funding and adequate compute infrastructure, Canada's ability to build domestic AI capacity and contribute meaningfully to international collaborations will weaken.

## Universities Canada recommendations:

1. Invest in secure, scalable compute infrastructure anchored in public infrastructure, to support discovery, advance participation from all regions of Canada and reinforce Canadian data sovereignty.
2. Strengthen federal programs that mobilize university expertise to help businesses adopt AI tools, improve productivity and commercialize Canadian innovations.
3. Expand successful initiatives like the CIFAR AI Chairs Program to deepen Canada's talent pool and enhance global competitiveness.
4. Ensure universities remain core partners in shaping AI policy and regulation, grounded in scientific evidence, ethics and responsible research practices.



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### About Universities Canada

Universities Canada represents 97 universities across the country. We are a membership organization that provides universities with a unified voice in higher education, research and innovation. Our member universities are located in communities across Canada, serving over 1.4 million students.

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### For more information:

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<sup>1</sup> Impact and Opportunities: Canada's National AI Ecosystem Report – 2023. <https://www.deloitte.com/ca/en/about/press-room/impact-and-opportunities.html>

<sup>2</sup> AI-driven sensing robots are learning how to grow food. <https://www.sfu.ca/research/performance-excellence/scholarly-impact-of-the-week/scholarly-impact-stories/2025/05/AI-drivensensingrobotsarelearninghowtogrowfood.html>

<sup>3</sup> Will AI make or break Canada? Innovators, researchers call for more guardrails. <https://www.cbc.ca/news/politics/ai-canada-regulations-innovators-researchers-9.6935017>

<sup>4</sup> UNB Fredericton researchers want to use AI to keep seniors out of hospitals. <https://www.cbc.ca/news/canada/new-brunswick/unb-researchers-a-i-healthcare-1.6680616>

<sup>5</sup> Impact and Opportunities: Canada's National AI Ecosystem Report – 2023. <https://www.deloitte.com/ca/en/about/press-room/impact-and-opportunities.html>

<sup>6</sup> AI Takes Flight: Nolinor Case Study. <https://mila.quebec/en/news/ai-takes-flight-nolinor-case-study>

<sup>7</sup> How AI Vali helps clinicians improve patient care through Vector's Fastlane program. <https://vectorinstitute.ai/how-ai-vali-helps-clinicians-improve-patient-care-through-vectors-fastlane-program/>

<sup>8</sup> Instrumar: AI to Improve Fiber Production. <https://www.amii.ca/case-studies/instrumar-ai-manufacturing-case-study>

<sup>9</sup> Cukier, W., Saiphoo, A. and Parkin, A. AI and the Shifting Landscape of Future Skills and the Future of Work. The Future Skills Centre. <https://fsc-ccf.ca/wp-content/uploads/2025/02/ai-and-the-shifting-landscape-of-future-skills-and-the-future-of-work-5.pdf>

<sup>10</sup> Mehdi, T. and Frenette, M. Exposure to artificial intelligence in Canadian jobs: Experimental estimates. Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/36-28-0001/2024009/article/00004-eng.htm>

<sup>11</sup> Employment income statistics by highest level of education. (Table 98-10-0411-01), Statistics Canada, 2023.

<sup>12</sup> Moving Mountains: Student Resilience Against the Cost of Living Pressures, Canadian Alliance of Student Associations, 2023.

<sup>13</sup> Mehdi, T. and Frenette, M. Exposure to artificial intelligence in Canadian jobs: Experimental estimates. Statistics Canada. <https://www150.statcan.gc.ca/n1/pub/36-28-0001/2024009/article/00004-eng.htm>

<sup>14</sup> Canada is lagging behind global peers in AI trust and literacy. <https://kpmg.com/ca/en/home/insights/2025/06/canada-lagging-global-peers-in-ai-trust-and-literacy.html>

<sup>15</sup> Statistics Canada. Table 27-10-0359-01. Total domestic expenditures on research and development (R&D) as percentage of gross domestic product (GDP), Canada and provinces, and G-7 countries. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=2710035901>