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# CANADA'S WELCOMING ARTIFICIAL INTELLIGENCE RESEARCH ECOSYSTEM

A conversation with **Elissa Strome**, Executive Director of the Pan-Canadian AI Strategy for the global research organization CIFAR



Artificial intelligence (AI) and machine learning have great potential, but come with inherent risks. For 40 years, CIFAR, an international organization based in Canada, has brought researchers together across disciplines and borders to address the most important questions facing science and humanity. This includes early investment in fundamental knowledge and applications of responsible AI. In 2017, CIFAR was asked by the Government of Canada to plan and lead the world's first national AI strategy. Elissa Strome outlines the strategy and the resources it provides.

## What is the Pan-Canadian AI Strategy?

Canada was an early investor in AI science, recruiting leaders in the field to our world-class universities decades ago. We provided early support to extraordinary researchers, such as Yoshua Bengio, Geoffrey Hinton and Richard Sutton in their fundamental discoveries about deep learning and reinforcement learning, which were speculative and unproven at the time. In turn, these researchers experienced what Canada has to offer in terms of funding and collaboration, as well as its great quality of life. Bengio, Hinton and Sutton acted as magnets, attracting great colleagues and students interested in tackling the issues around machine learning and establishing a critical mass of AI expertise in our major centres. In 2017, when the Government of Canada asked CIFAR to design and lead the Pan-Canadian AI Strategy, we helped establish three independent AI research institutions: the Vector Institute in Toronto, Mila in Montreal, and Amii in Edmonton, each with a slightly different focus - reflective of their regional academic strengths and economies, but all with significant strength in core research areas.

## How does the strategy support early career researchers?

The Canada CIFAR AI Chairs programme is at the heart

of the strategy. Each chair is appointed to one of the three institutes and receives five years of dedicated research funding, which allows them to hire top graduate students and postdoctoral fellows. Many chairs have co-appointments in industry, giving the PIs and their trainees opportunities to work in academia and industry simultaneously. And with a recent major funding renewal from the Government of Canada, we're excited to be able to renew chairs for a second term, as we continue to recruit even more new chairs and graduate students from Canada and internationally.

## Who are some successful AI Chairs?

Every one of our chairs is successful and doing fantastic work, but I'll name some examples from each institute. Dhanya Sridhar is at Mila and the Université de Montréal. Her work on causality is theoretical and philosophical in nature, but she links it to real-world applications ranging from health care to social media moderation. Another chair is Alán Aspuru-Guzik, who is a renowned chemist and machine learning expert at the Vector Institute and the University of Toronto. He and his colleagues build roboticized labs that use machine learning to autonomously develop new materials that can be used in applications such as renewable

energy and solar cells. And at Amii and the University of Alberta we have Martha White, who is focused on the fundamental science and theory behind reinforcement learning. Not only is she a great scientist, but she is also a great leader who is actively pushing for more diversity in machine learning.

## What resources are available for AI researchers looking to grow their careers?

Canada has a strong culture of ensuring that AI is doing societal good and not causing harm, and so we're a great environment for researchers who are passionate about the big picture of responsible AI. Along with the academic sector, our ecosystems bring together larger companies, policymakers, and venture capitalists. Depending on what you're interested in, you can pursue a career in academia, then launch a startup company, and then go work for a big company without having to leave the ecosystem. More broadly, Canada's cities are excellent places to live and raise families. We're an open and democratic society offering great quality of life, strong education systems, universal health care, and vibrant metropolitan cities. We also benefit from proactive immigration policies that enable highly qualified individuals to move to Canada quickly.

## How is CIFAR supporting a more representative AI community?

Our training programmes target the diversity gap in computer sciences by giving members of underrepresented groups the opportunity to learn skills and develop expertise in AI at all stages of their learning path. These range from a seven-week programme for undergraduate women and under-represented genders to learn the basics of AI, to a summer school on the state-of-the-art of AI science for the top computer science graduate students from around the world. We also partner in training programmes for Indigenous students and other under-represented groups. Because AI has the potential to affect all our lives, it's imperative that the people building and deploying it be representative of us all.

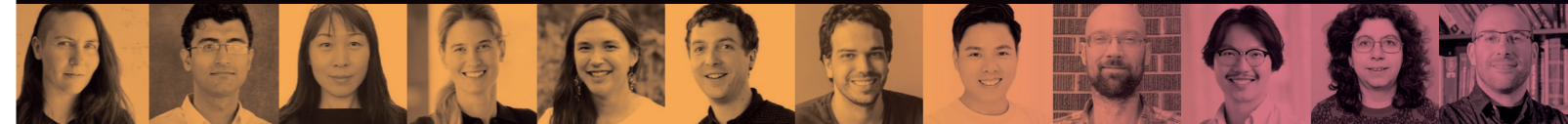
For more information on how you can kick-start your career in AI or machine learning, take a look at CIFAR's webpage: [cifar.ca/aicanada](http://cifar.ca/aicanada)



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# The world needs more Canadian AI



**The Pan-Canadian AI Strategy drives cutting-edge research, trains the next generation of diverse AI leaders, and fosters cross-sectoral collaboration for innovation, commercialization and responsible AI adoption.**

Our three National AI Institutes – **Amii** in Edmonton, **Mila** in Montréal, and the **Vector Institute** in Toronto – are the vibrant central hubs of Canada's thriving AI ecosystem.

Diversity is our greatest strength. We're building a dynamic, representative, and rich community of world-leading researchers who want to create transformative, responsible AI solutions for humanity and the world.

**Join us.**

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