



Future Forward

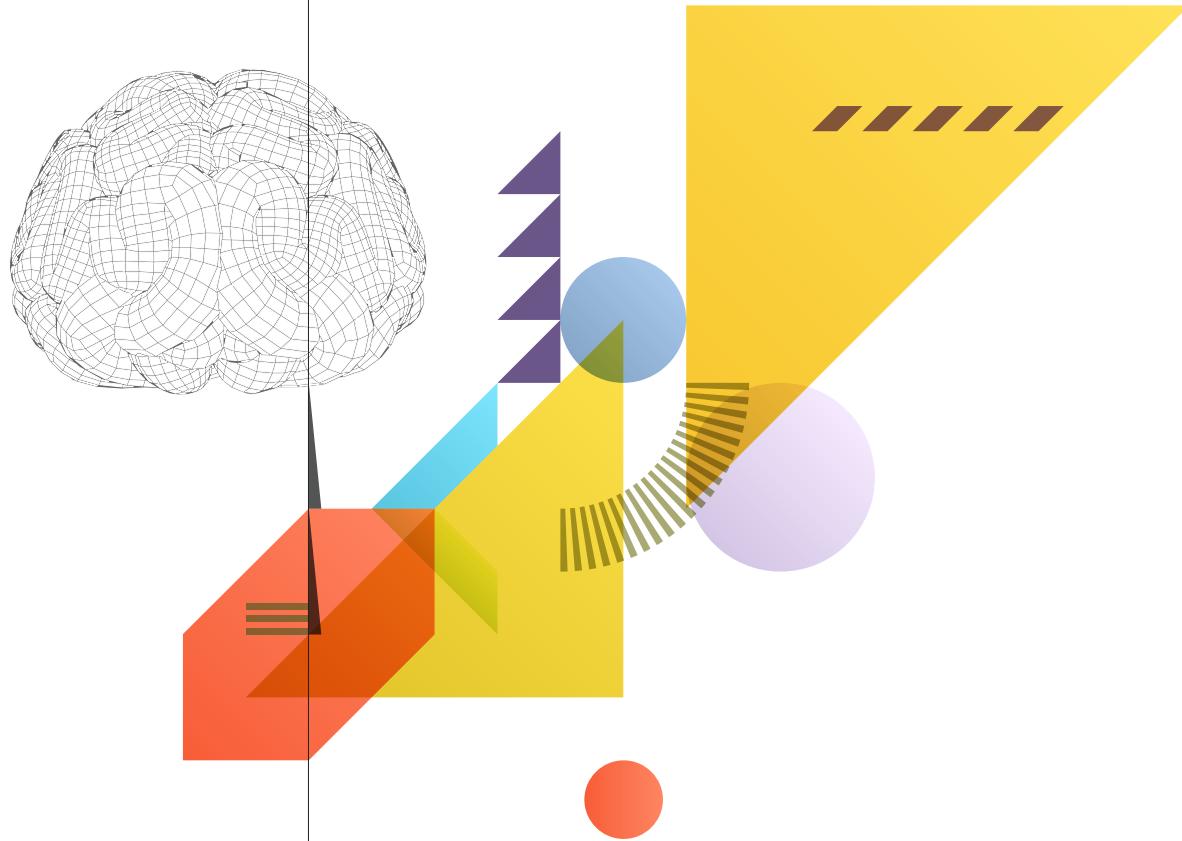
AI + Neuroscience

A Roundtable series

A Summary of Discussions
Prepared by: Brain Canada Foundation
Spring 2025

Canada is uniquely positioned to lead in AI brain research. We rank among the top five countries in the world in brain research, publishing 6.4% of brain research articles globally. Canada ranks first in the G7 for year-over-year growth in AI talent density.

Contents



5_ Message from the CEO

7_ Roundtable Overview

Roundtable Insights

- 9_** State of Neuroscience
- 11_** Vision
- 13_** Challenges and Opportunities
- 20_** Successes

Appendix

- 22_** Current Landscape
- 23_** List of Participants



Message from the CEO

Dr. Viviane Poupon

Artificial intelligence (AI) is revolutionizing the way neuroscience research is conducted and, in the process, boosting the promise for earlier detection, improved prevention strategies, and better treatments for everything from autism and depression to Alzheimer's disease.

As a leading convenor of Canada's brain research community and funder of bold brain research, Brain Canada is advancing efforts to harness the potential of AI to transform health care and improve health outcomes. Since 2011, Brain Canada has supported 26 research projects to develop AI tools that advance our understanding of the brain and disease solutions. This includes the work of Nobel laureate, Dr. Geoffrey Hinton, whose ground-breaking research in machine learning and artificial neural networks we supported in partnership with CIFAR.

Brain Canada is increasingly funding projects that support the development of AI models, for example, to better detect metastatic brain cancer without aggressive surgery, support shared decision-making between clinicians and patients with major depression, and improve the diagnostic accuracy of routine EEG testing for epilepsy.

Given the swift pace of innovation at the intersection of AI and neuroscience and the opportunity to strengthen Canada's position as a global leader in both areas, Brain Canada is developing a national strategy to harness AI in a way that will improve brain health for all. In Spring 2025, with hosting support from our partners across the country, Brain Canada convened eight roundtable discussions in six cities with leading experts working at the interface of AI and neuroscience. The 75 participants included Brain Canada's network of local partners, researchers, health care experts, philanthropists, tech leaders, and AI pioneers.

This report is a high-level summary of the many valuable contributions attendees made to these discussions. It shares the vision that we heard, the many challenges and opportunities that were raised, and clarifies the next steps for Brain Canada:

- **Identify key opportunities that Brain Canada can pursue through its mandate;**
- **Identify and approach potential partners to advance these key opportunities; and**
- **Co-develop a comprehensive strategy to pursue these opportunities.**

We are grateful to everyone who participated and look forward to putting these findings into action.

Sincerely,

Viviane Poupon, PhD
President and CEO
Brain Canada Foundation



Roundtable Overview

Through the eight roundtable discussions that Brain Canada held in six cities in spring 2025, we sought to learn the following:

State of neuroscience

Where are we now? What are our current capabilities and how are we currently using AI in neuroscience?

Vision

What is the end goal of applying AI to neuroscience? What are our grand aspirations?

Challenges and opportunities

What are the challenges and barriers (ethics, privacy, equity, etc.) at the intersection of neuroscience and AI that need to be addressed? What are the short- and long-term opportunities to scale use of AI in neuroscience?

Successes

What are some successes in other fields?

Roundtable events and organizations involved:

Montreal

April 4th and May 15th, 2025
Hosted by Brain Canada Foundation

Toronto

April 14th and June 20th, 2025
Hosted by the Krembil Foundation and Centre for Addiction and Mental Health

Edmonton

May 26th, 2025
Hosted by Alberta Neuroscience and Parkinson Association of Alberta

Calgary

May 27th, 2025
Hosted by Alberta Neuroscience and the Hotchkiss Brain Institute, University of Calgary

Vancouver

June 13th, 2025
Hosted by the Djavad Mowafaghian Centre for Brain Health, University of British Columbia

Ottawa

June 19th, 2025
Hosted by the Royal Ottawa Mental Health Centre

The insights shared in this report are a summary of what the 75 participants shared at the various roundtable discussions. It captures their diverse views and experiences but does not represent agreed-upon conclusions. In addition, the content of the report does not necessarily represent the views of Brain Canada.



State of Neuroscience

Roundtable Insights

Where are we now?

What are our current capabilities and how are we currently using AI in neuroscience?

Current use of AI:

- ▶ Researchers are now successfully scaling AI models with neural data.
- ▶ Real-time, multi-modal, adaptive brain-computer interfaces are already improving quality of life for some patients.
- ▶ There's significant momentum building around AI applications in neuroscience. For example, there's currently great interest in adapting large-scale AI to neuroscience applications, both in the private sector and the academic sector, with large investments from various companies including [Neuralink](#), which develops brain-computer interfaces, other start-up companies, and venture capital firms.
- ▶ Canada is a great place to learn how to use AI responsibly; for example, we now have the [Digital Research Alliance of Canada](#) and the [Canadian Artificial Intelligence Safety Institute](#).
- ▶ Initial optimism about AI has shifted at this point; no single model can solve all problems. Customization, context-awareness, and problem-specific approaches are essential moving forward.

Current limitations (high level):

- ▶ Part of the neuroscience field has transitioned to using computer models to generate hypotheses, while the other part is still collecting biological based models—the two groups do not speak to each other as well as they could.
- ▶ Despite technical progress, many neuroscientists are skeptical and/or nervous about the AI approach and are worried about what it means for traditional neuroscience funding and methods.
- ▶ AI literacy is low across the neuroscience community, as well as among patients, clinicians, and researchers.
- ▶ While there's excitement about AI's potential, participants expressed concerns about moving too quickly without proper validation.
- ▶ The current neuroscience knowledge base is limited; for a large majority of the brain, we have significant knowledge gaps regarding how it works. An acknowledgment of knowledge gaps is important for setting realistic expectations about AI's potential contributions.
- ▶ A clearly articulated purpose is urgently needed: the community lacks a shared, strategic vision to direct efforts and resources effectively.



Brain diseases and disorders
are the leading cause of overall
disease burden globally.

Vision

Roundtable Insights

What is the end goal of applying AI to neuroscience?

What are our grand aspirations?

Vision for the research ecosystem: a national Canadian ecosystem where neuroscientists and AI experts work collaboratively, moving beyond traditional disciplinary silos.

Realizing the promise of personalized medicine:

- ▶ Putting personalized medicine into practice in the near future will not be possible without AI.
- ▶ Concepts like "neurotype mapping" could enable highly personalized diagnoses and treatment, redefining current psychiatric taxonomies.

Potential outcomes:

- ▶ Better understanding of disease trajectories for each person.
- ▶ Improved diagnostic speed and accuracy using AI in clinical imaging and electronic health records (e.g., predicting stroke before it occurs).
- ▶ Reduced physician workload and improved patient outcomes.

Enhancing care:

- ▶ Improve clinical workflows, efficiency through AI-enabled scribes and decision support tools (e.g., to support imaging diagnostics).
- On some First Nations reserves, nurses spend up to half their workday on paperwork—AI-enabled tools could return that time to patient care.
- AI tools for extracting information from medical records would increase the "signal-to-noise" ratio of information fed to physicians. For example, a large language model could condense daily patient diary entries into actionable summaries for doctors, transforming scattered patient reports into useful clinical insights.
- Data indicates that AI augments the average doctor to an excellent doctor¹—this translates into the opportunity for more people to receive excellent care.

- Caveat that this needs to be paired with human senses; the AI model can listen to the conversation but doesn't have the five senses. For example, can it see a finger twitch or smell alcohol on the breath or sense something is off?

- ▶ Improve monitoring and treatment support with AI-assisted behavioural therapy tools and mental health chatbots.
- ▶ Enhance brain-computer interface applications, for immediate impacts for conditions like ALS.
- ▶ Improve effectiveness of treatments with AI-optimized brain stimulation and neuromodulation interventions.
- ▶ When people are asked to consent to using their data for research and AI, most typically agree; the public wants to see benefits of AI in health care.

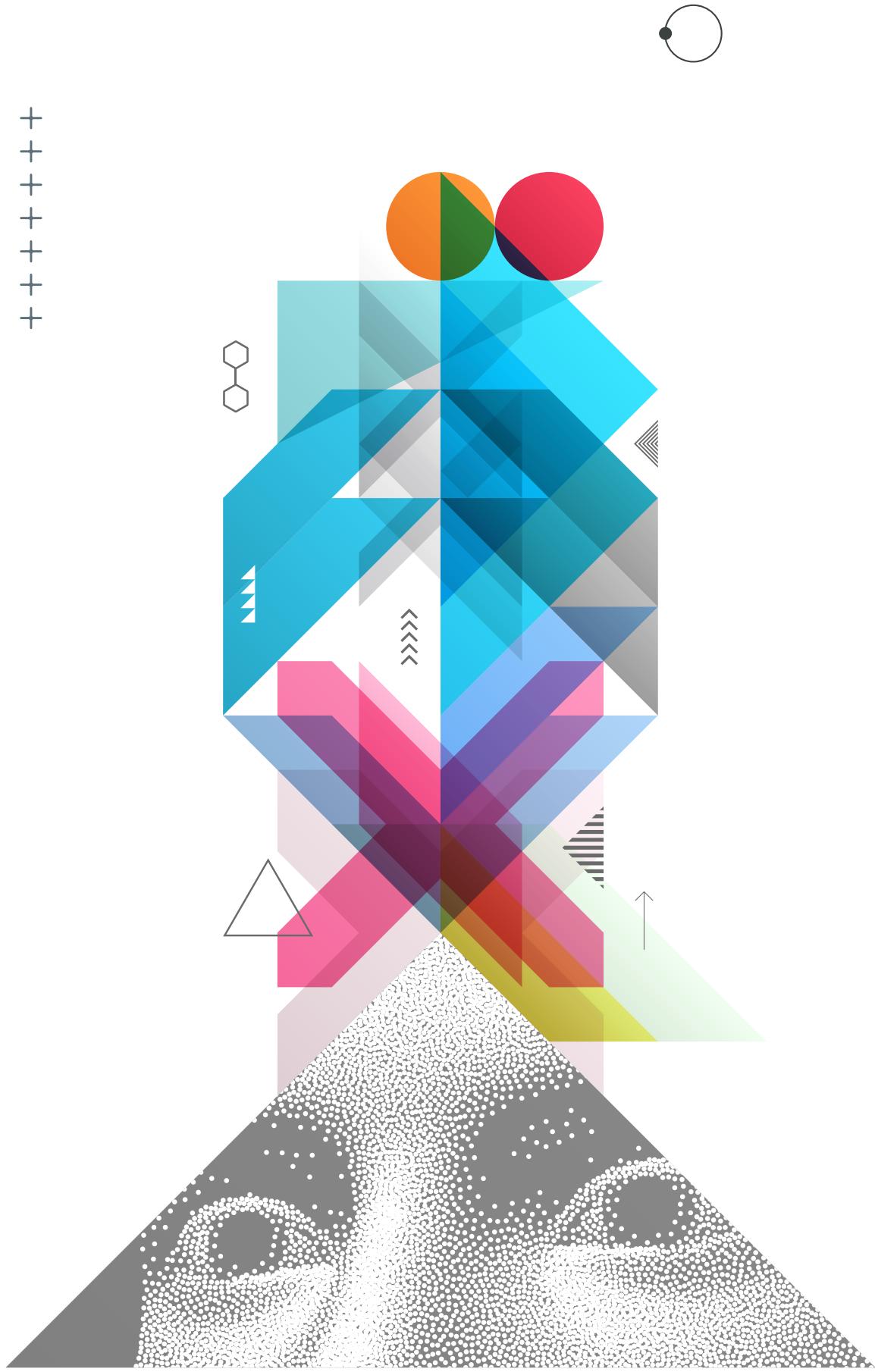
Improving AI:

- ▶ Develop AI models inspired by neural processes to enhance machine learning (reverse translation from brain to AI).

Achieving economic benefit:

- ▶ Realize significant employment opportunities in areas like AI-driven drug design.
- ▶ Seize opportunity to build Canada's innovation capacity and develop cost-effective health care solutions.

¹Goh, E., Bunning, B., Khoong, E.C. et al. Physician clinical decision modification and bias assessment in a randomized controlled trial of AI assistance. *Commun Med* 5, 59 (2025). <https://doi.org/10.1038/s43856-025-00781-2>



Challenges and Opportunities

Roundtable Insights

What are the challenges and barriers (ethics, privacy, equity, etc.) at the intersection of neuroscience and AI that need to be addressed?

What are the short- and long-term opportunities to scale the use of AI in neuroscience?

FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Data Quality and Readiness	<p>Massive datasets are needed to train AI models comparable to large language models, with estimates suggesting millions of hours of neural recordings are required.</p> <p>Canada lacks standards for what constitutes an "AI-ready" dataset and has no requirement for AI model validation.</p> <p>High-quality, mixed data sets are needed to improve AI models and realize the potential for large-scale AI innovation, but combining datasets from multiple sources is challenging due to lack of standardized, accessible, interoperable, and high-quality data across research centres. Complex data sharing agreements are also a barrier.</p> <ul style="list-style-type: none"> ▶ Large biobanks linked to clinical and administrative data would facilitate AI research. For example, Ontario has the Gemini Initiative, which collects detailed clinic AI and administrative data from 30+ participating hospitals across Ontario and makes it available for research. Not all provinces have this kind of resource. <p>Better data collection methods are required. Current data collection is fragmented, modality specific, poorly labelled, and inconsistent across different devices, in different settings, by different technicians, etc. It also often lacks the ecological diversity and scale needed.</p> <p>Data standards are needed to enable consistency and collaboration; standards (including for metadata) should exist across countries.</p>	<p>Encourage the federal government to establish a national AI-neuroscience strategy and invest in major neuro-AI infrastructure, models, and data harmonization initiatives.</p> <p>Enable creative approaches to support gathering and bridging vast amounts of data (e.g., genetics, brain, behaviour data) and making it easy to access and use by researchers.</p> <p>Support the development of shared AI-ready neuroscience datasets.</p> <p>Support the use of incomplete ("messy") data to train AI models, because this is the reality of real-world data sets; the pursuit of perfect models is expensive and limits progress, while quick access to data allows teams to start testing models early on and leads to more successful outcomes.</p> <p>Self-supervised learning (a machine learning technique where a model learns to generate its own labels from unlabelled data) and foundation models trained on heterogeneous, unstructured data are promising paradigms, reducing dependence on high-quality labels.</p> <ul style="list-style-type: none"> ▶ Provide support for collaboratively training an AI model via federated learning frameworks.² Common data schemas (e.g., BIDS for EEG) are another path towards usable, interoperable, large-scale data sharing.

² A **federated learning model** is a machine learning approach where multiple devices or entities collaboratively train a model without directly sharing raw data. Instead, each device trains a local model using its own data and then shares only the model updates or parameters with a central server, which aggregates these updates to improve a global model. This approach preserves data privacy by keeping the sensitive data on the individual devices.

FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Model Development	<p>If we don't do it, they will; building foundation models³ is essential to advancing brain health and other countries will achieve this if we don't. Models using Canadian data need to be developed locally here in Canada.</p> <p>Technical complexity and resource requirements are barriers to developing foundation models and require strategic partnerships to overcome.</p> <p>Current funding structures may not be adequate for the scale of investment required for models; non-traditional funding approaches are needed.</p>	<p>Innovative funding models that combine federal, provincial, and private sector investment will help realize AI-neuroscience initiatives like foundation model development.</p> <p>Prioritize partnerships with global research networks while maintaining Canadian data sovereignty.</p> <p>Provide targeted support to develop foundation models:</p> <ul style="list-style-type: none"> ▶ Provide seed funding for regional or national data platforms for brain research to support foundation model development. ▶ Support the development of a large-scale, brain-specific foundation model using multimodal neuroscience data; this should be a world model that can respond to the dynamic nature of the brain. ▶ This effort would advance synapse- and circuit-level models to understand brain function and dysfunction, with clinical relevance (e.g., to support hypothesis generation, reveal novel disease pathways, predict individual risk factors, enable earlier interventions, drive discoveries that no single dataset could provide on its own). <p>Targeted support to develop digital twins:⁴</p> <ul style="list-style-type: none"> ▶ Provide targeted funding to develop digital twins of the brain for simulation, prediction, and individualized treatment modelling. (Related to the above but distinct given individualized; can be combined with foundation models).
Computing Infrastructure	<p>Limited infrastructure (e.g., storage and computing power) for storing, sharing, and processing sensitive patient data (e.g., Compute Canada and host institution limitations). The infrastructure gap puts Canadian institutions at a disadvantage compared to US and EU counterparts.</p> <p>Hospitals and researchers also struggle with uploading restrictions and computing compatibility issues.</p>	<p>Build support for computing capacity into project funding to address growing needs for better computing infrastructure.</p> <p>Consider separate funding to support secure, accessible data management infrastructure (i.e., where open access data can be combined and shared).</p>

³A foundation model is a large, pre-trained AI model that can be adapted to a wide range of tasks related to analyzing and understanding brain activity. These models are trained on massive datasets of neural data (e.g., fMRI recordings) and then fine-tuned for specific downstream applications.

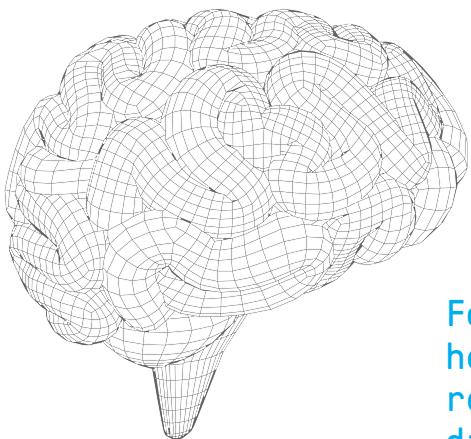
⁴Digital twins are personalized virtual representations of an individual's brain that simulate brain activity and predict responses to enable personalized medicine. Digital twins leverage foundation models, but they also incorporate individual-specific data like brain scans and genetic information.

FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Computing Infrastructure	Support for infrastructure is not necessarily built into project funding and there are limited opportunities for separate support.	
Collaboration and Networking	<p>Limited engagement between AI experts and clinical neuroscience teams.</p> <ul style="list-style-type: none"> ► Deep-rooted academic structures, including emphasis on individual funding and publication incentives, hinder the collaborative, centralized approach needed for large-scale efforts like foundation models. <p>Siloed funding pathways that disadvantage interdisciplinary or cross-cutting research applications; this makes it difficult to integrate AI into neuroscience and vice versa, integrate neuroscience into AI.</p> <p>Fragmentation of international collaborations due to ideological divides (e.g., psychedelics research) and lack of shared purpose.</p>	<p>Support interdisciplinary team-based projects at the AI-neuroscience interface, with built-in data harmonization components, to build sustainable, interdisciplinary research ecosystems.</p> <p>Establish seed funding for regionally focused nodes of neuro-AI translation.</p> <p>Offer opportunities to bring people together in person across disciplines, such as with the roundtable discussions, to network, coordinate, and develop collaborations.</p> <ul style="list-style-type: none"> ► Consider working with CIFAR to coordinate with their annual meetings of all CIFAR AI Chairs to bring a focus on neuroscience.
Diversity, Equity, and Inclusion	<p>Presence of bias in algorithms; need to address sex- and gender-related differences in AI models, ensure AI models don't perpetuate existing health care disparities and are inclusive of diverse populations. This is especially the case in mental health applications.</p> <p>AI-enabled health innovations need to be made available and delivered equitably; some health care institutions will be more ready to adopt AI solutions compared to others, giving some people an access advantage based on where they live.</p> <p>Insufficient representation of mental health applications in broader AI health strategies.</p>	<p>Rather than attempting to compete with tech giants, encourage the federal government to focus its national AI-neuroscience strategy on targeted areas of strength and leadership and build purpose-driven platforms that reflect Canadian values like equity and social impact.</p> <p>Advocate for inclusive AI strategies that prioritize brain health and mental health applications and unify efforts across provinces and institutions.</p>

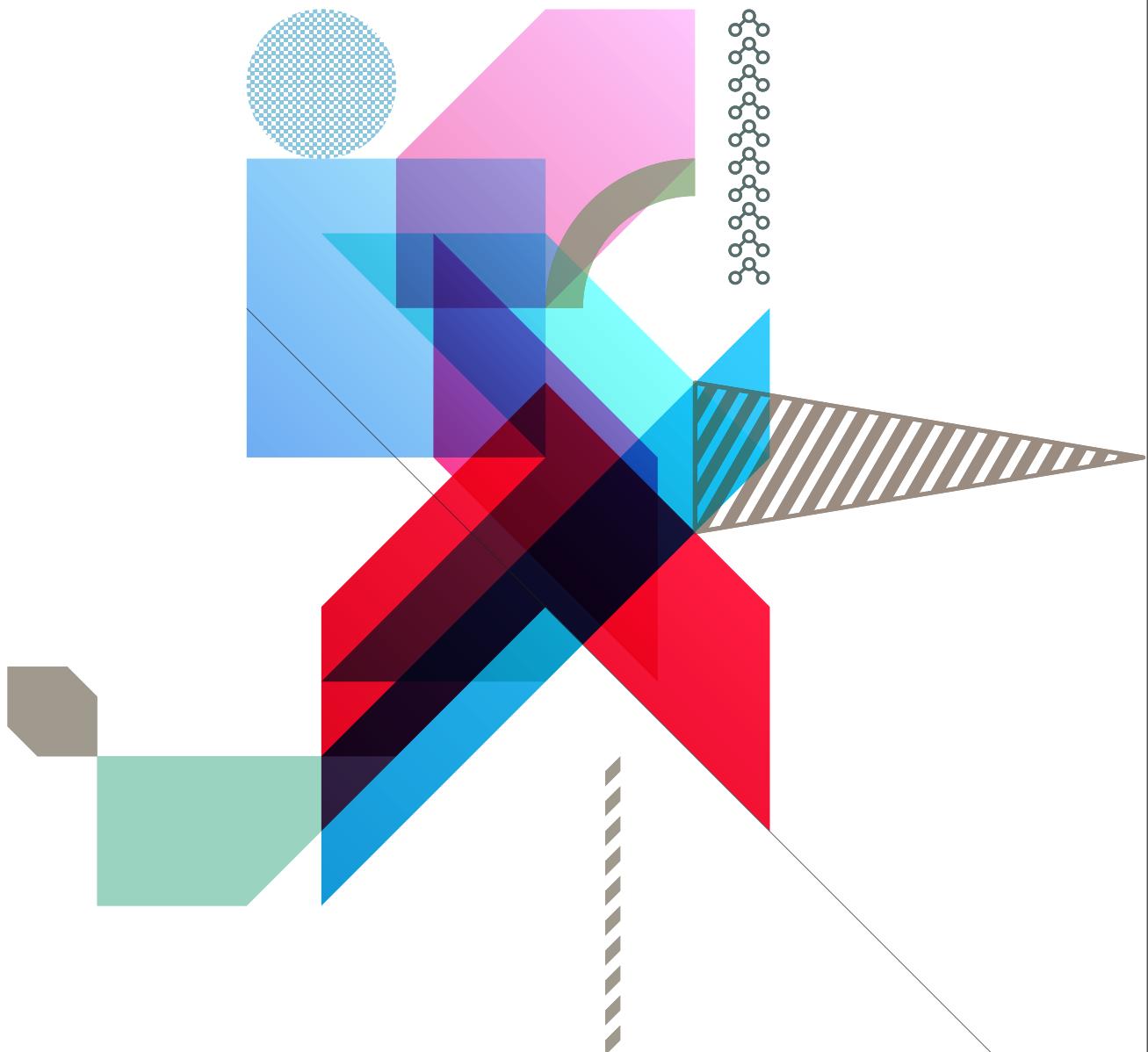
FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Ethics and Privacy	<p>Need better transparency and accountability in AI models; perception that AI is a "black box" persists and needs to be addressed.</p> <p>Privacy, ethics, and governance concerns around sensitive brain and mental health data at management levels of health authorities creating significant barriers to access.</p> <p>Unclear ethical guidelines and public mistrust regarding AI use in brain health and personal data, particularly around sensitive data (e.g. mental health data) with perceptions of misuse and future exploitation.</p> <ul style="list-style-type: none"> ▶ Specific ethical concerns need to be addressed with Indigenous peoples. ▶ Urgent care in emergency rooms poses a unique challenge, where patients are in crisis and patient consent needs to be addressed carefully. <p>Many datasets used to train AI models are fundamentally biased and missing variables related to equity. More effort needs to be directed to correct this bias.</p> <p>Lack of regulation in consumer neurotech, behaviour tracking, and productivity tools that collect neural data.</p> <p>Significant ethical considerations of using AI in hospitals; risk-benefit analyses and long-term monitoring are required, along with proper training and education to ensure responsible use and risk management.</p> <p>Environmental impacts of AI will need to be addressed; how to ramp up use of AI responsibly?</p>	<p>Advocate for national policies on data governance, standardization, ethical design, and privacy to unlock responsible, transparent AI development.</p> <ul style="list-style-type: none"> ▶ Support policy and regulatory changes to enable responsible, ethical commercialization and clinical implementation of AI tools in health care settings. ▶ Promote integration of neuroethics and social license into national AI research strategies and frameworks. <p>Promote public education and digital literacy initiatives to enhance public understanding and build trust in neuro-AI applications, while also teaching people to constantly question the AI and verify what's being generated.</p>

FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Commercialization and Implementation Support	<p>Administrative challenges and the competitive nature of academia can hinder collaboration and data sharing between hospitals and research institutions.</p> <p>Profit motives and bureaucratic hurdles are a barrier to collaboration between hospitals and industry; some companies charge prohibitively high fees for data access compared to what's available in academia.</p> <p>Need "privacy by design" approaches to address challenges with informed consent, data governance, etc. in solution development.</p>	<p>Offer pilot or incubator funding to test AI tools in clinical deployment (i.e., support incubation of these ideas in the hospital environment). This could include decision support, scribe tools, personalized psychiatry. The projects would ensure hospital readiness, assessing effectiveness of tool before large-scale implementation.</p> <p>Offer commercialization-focused grants to take AI-based brain health solutions and prepare to bring them to market.</p> <p>Support development of new proof points in clinical research, e.g., organs on a chip instead of animal models.</p> <p>Develop challenge-based programs focused on specific societal goals (e.g., reducing diagnostic delay in neurodegenerative diseases).</p> <p>Explore ways to leverage industry's resources and AI tools, especially in pharma and health, while establishing transparency, validation, strong governance, and public trust.</p> <p>Support development of a progressive, longitudinal approach to monitor the risks and benefits of AI implementation in hospitals.</p>
Academic and Workplace Culture	<p>Insufficient incentives and academic structures for data sharing and interdisciplinary collaboration. For example, academic funding often favours small, hypothesis-driven projects over platform-level initiatives. Large-scale efforts require flexible, long-term funding mechanisms.</p> <p>Resistance within neuroscience community to large-scale data sharing and AI model development.</p> <p>Low adoption rates of AI tools in clinical practice due to regulatory, workflow, and workplace culture constraints.</p>	<p>Champion incentives for data sharing and recognition of team science and translational impact in promotion at academic institutions.</p> <p>Promote the following changes to the research system:</p> <ul style="list-style-type: none"> ▶ Standards: raise need to create a benchmark for AI development and establish performance standards. ▶ Promote harmonized consent models and ethical standards for brain health data use. ▶ Data collection: encourage passive data collection for health monitoring, i.e., non-intrusive monitoring technologies and the use of generative AI for guided data collection.

FOCUS AREA	CHALLENGES AND BARRIERS	OPPORTUNITIES
Academic and Workplace Culture	<p>A significant cultural shift is required within neuroscience to embrace large-scale AI model development. There's prevailing skepticism around combining disparate datasets and moving beyond individual lab-led hypotheses.</p>	
Talent: Recruitment and Retention	<p>Attracting and retaining international talent is difficult given competition with industry, which has more attractive salaries, and other fields such as cancer, where there is more funding.</p> <p>Clinicians are eager to implement AI solutions but lack access to AI experts that can leverage data to build the tools they need.</p>	<p>Offer training grants or interdisciplinary fellowships to build talent pools in neuro-AI research. These fellowships could bridge neuroscience, engineering, AI, clinical implementation, and ethics, and ultimately help to build cross-over expertise.</p> <p>There is a pressing need for training programs that integrate both technical (e.g., machine learning) and clinical perspectives. Many graduate students, clinicians, and decision-makers lack sufficient understanding of AI, data interpretation, or even the data available in their own fields, whereas others from tech-heavy disciplines lack proper understanding of the research or clinical context.</p> <p>Develop new types of fellowships, staff scientist positions, and research chairs to retain and attract talent in Canada, especially amid brain drain to U.S. institutions.</p> <p>Fund dedicated data stewards/scientist positions to manage, curate, and facilitate access to research datasets. Involve data stewards/scientists early in projects and ensure their involvement is enabled in the long-term.</p> <p>Balance early-career and mid-career researcher support, given that both are critical to building the talent pool.</p> <p>Offer discovery grants to support high-risk, high-reward research, help launch careers at the interface of neuroscience and AI.</p>



For Canada, investments in mental health solutions alone could reduce the national burden of disease by 36% and unlock \$87.9 billion in GDP impact by 2050.



Successes

Roundtable Insights

What are some successes in other fields?



Consortia:

The [ENIGMA \(Enhancing Neuroimaging Genetics through Meta Analysis\) Consortium](#) is a global alliance of over 1,400 scientists across 43 countries studying the human brain in health and disease. Its collaborative approach, which includes over 50 working groups, pools massive, worldwide datasets and expertise to answer fundamental questions in neuroscience, psychiatry, neurology, and genetics. ENIGMA supports more than 200 active studies and has been a force for discovery and innovation in human brain imaging.⁵



Large-scale AI models:

The [AlphaFold Protein Structure Database](#) is an AI program developed by DeepMind, a subsidiary of Alphabet, that is designed using deep learning techniques. By predicting molecular structures with AI, AlphaFold has saved researchers billions of hours of lab work, enabled drug discovery, and attracted millions of users in 190+ countries. A foundation brain model would similarly eliminate bottlenecks, unlock new research hypotheses, and accelerate discovery across disciplines.



Implementation of AI in clinical settings and public health:

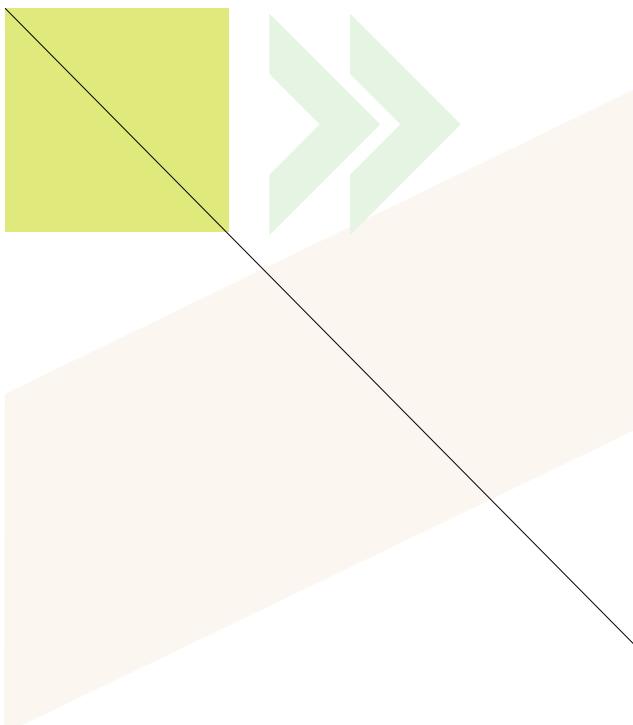
- ▶ The Mayo Clinic has integrated AI into their health record system for interpreting PET scans in dementia patients, allowing clinicians to compare their patients with 15,000 histologically confirmed cases. This represents significant clinical translation success.
- ▶ A team in Alberta built a large language model specifically tuned to extract information from medical records. They trained it on 1,000 cases, and when deployed, the tool processed 9,000 cases in just 18 minutes with 99% accuracy. The tool not only provided yes/no classifications but also explanations for its decisions. Doctors said this would "revolutionize how we do enrollment to clinical trials and research studies" and planned to use it as a screening tool with human review for unusual cases.
- ▶ In the field of mental health, researchers have used AI to predict suicide outcomes based on social media data, illustrating how AI can be applied to critical public health challenges.

⁵ Thompson, P.M., Jahanshad, N., Ching, C.R.K. et al. [ENIGMA and global neuroscience: A decade of large-scale studies of the brain in health and disease across more than 40 countries.](#)



Implementation of AI in the business sector:

- ▶ Stringent processes and vigorous testing were required to put AI models into production in the business sector to ensure trust and reliability by clients.
- Vigorous testing can make for a slow process, but it's necessary. One participant noted that a development team creates the model, and a completely separate team tests it. This is like a scientific peer review but with an enormous amount of back-and-forth to make sure the model works.



Program design and process considerations for funders:

- ▶ Workshop process for funding where researchers from the various disciplines are brought together to brainstorm and flesh out project possibilities before applying works well for interdisciplinary research.
- ▶ Bringing database researchers, AI researchers, and neuroscientists together to develop the funding proposals is key—data, AI, and domain knowledge are all essential to build something useful (e.g., it's easier to interpret data with the people who produced the data working alongside).
- ▶ Hackathon-style project development is an effective approach to rapid prototyping and idea generation.
- ▶ Review panels must include relevant expertise from neuroscience, AI, and other fields as relevant.
- ▶ Consider including industry representatives and clinicians on review panels to judge the grants (i.e., engaging the end user in the review of grants) and on the project team to help develop applications (i.e., ensuring practical applications, that the end user will action the results).
- ▶ For training opportunities, look to success of joint-degree graduate programs and proven interdisciplinary education models for guidance on program design.
 - For example, the Taiwan International Graduate Program in Interdisciplinary Neuroscience (TIGP-INS) supports a multidisciplinary approach to neuroscience research, incorporating AI and other relevant fields.

Appendix

Current landscape

Innovation, Science and Economic Development Canada (ISED) Pan-Canadian AI Strategy

- ▶ Three National AI Institutes: Amii in Edmonton, Mila in Montreal, and the Vector Institute in Toronto—hubs that foster innovative research and cultivate talent.
- ▶ Canada CIFAR AI Chairs Program: more than 125 leading researchers advancing cutting-edge research in areas like AI safety, drug discovery, machine learning for health, autonomous systems, materials discovery, human-AI interaction, and natural language processing.
- ▶ AI Catalyst Grants: offer flexible but targeted short-term funding intended to spur interdisciplinary collaborations that push research boundaries and/or address emerging themes within machine learning.
- ▶ Solution Networks: cross-sectoral teams of interdisciplinary experts who design, develop and implement responsible AI solutions that can address the complex challenges associated with emerging technologies.

The Canadian Neuroanalytics Scholars Program

- ▶ The goal of the program is to cultivate a world-class talent pool that can effectively utilize the existing open neuroscience data and meet the growing demand for neuroscience research in the fields of artificial intelligence and machine learning (AI/ML).
- ▶ Will support and train up to 20 postdoctoral scholars in advanced analytics, providing them with hands-on experience. The program also includes a community of practice component.
- ▶ Partners: Alberta Neuroscience, in partnership with the Hotchkiss Brain Institute, the Tanenbaum Open Science Institute at The Neuro and the Ontario Brain Institute, with support from The Hilary & Galen Weston Foundation.

IVADO

- ▶ IVADO, funded via the Canada First Research Excellence Fund, is an interdisciplinary, cross-sectoral research and knowledge mobilization consortium led by Université de Montréal whose mission is to develop and promote a robust, reasoning and responsible AI.

- ▶ Training and talent development: IVADO offers training and certification programs, bootcamps, workshops, and career development, including the Postdoctoral Research Funding Program 2024–25 offered career development support to contribute to the R3AI initiative, Shifting Paradigms for a Robust, Reasoning and Responsible Artificial Intelligence and its Adoption.
- ▶ Research funding: IVADO supports AI research through thematic semesters, exploratory and collaborative grants, scholarships, and major science challenges (e.g., robust, reasoning, responsible AI). The Exploratory Projects Program funds cross-sector, interdisciplinary pilot projects (~\$100K each) to foster innovation.

RBC Borealis

- ▶ RBC Borealis AI advances machine learning and artificial intelligence through pioneering research in areas like time-series modelling, reinforcement learning, natural language processing, and generative models. Their goal is to develop solutions for banking and finance, to enhance risk management, fraud detection, personalized banking, and operational efficiency across RBC's business lines.
- ▶ Training top talent: through its Machine Learning Research Internship Program, in partnership with Mitacs, and collaborations with academia, Borealis supports graduate students and postdocs in AI and machine learning. Interns work on both theoretical and applied machine learning projects using large-scale structured and unstructured financial datasets.

Digital Health and Discovery Platform (DHDp)

- ▶ Launched in 2024 and funded by the Strategic Innovation Fund (SIF), the DHDp is a collaborative network of key experts and partners working to bring precision medicine and personalized care in cancer and neurodegenerative disease to Canadians through the application of big data and artificial intelligence.
- ▶ Digital Health Innovation Fund: supports the development of research programs through their use of the Platform. While the fund prioritizes oncology and neurology research programs, the DHDp is a disease agnostic initiative.

Appendix

Participants

Calgary May 27th, 2025

Hotchkiss Brain Institute,
University of Calgary
Aaron Phillips
Catherine Lebel
Eli Kinney-Lang
Jennifer Dotchin
David Park
Nils Daniel Forkert
Roberto Souza
Javier Orlandi
Wilten Nicola
Samira Ebrahimi Kahou
Signe Bray
Taim Saeed
Yani Ioannou

Edmonton May 26th, 2025

Parkinson Association of Alberta
Alona Fyshe
Chris Maksylewicz
Cloud Cao
Doug Zochodne
Ethan Hagen
Gerardo Mejia
Hossein Rouhani
Jodi Goebel
Lana Tordoff
Mohamed Abdalla
Roger Dixon
Ross Mitchell
Taim Saeed
Vivian Mushahwar

Montreal April 4th, 2025

Brain Canada Foundation
Blake Richards
Danilo Bzdok
Esma Aimeur
Guillaume Dumas
Marco Bonizzato
Shirin Abbasi Nejad Enger
Julien Doyon

Montreal May 15th, 2025

Brain Canada Foundation
Alan Evans
JD Miller
Karim Jerbi
Mathilde Chaineau
Patricia Conrod
Paul Cisek
Pouya Bashivan
Simon Fournier
Sylvana Cote

Ottawa June 19th, 2025

The Royal Ottawa Mental Health
Centre
Florence Dzierszinski
Georg Northoff
Jennifer Phillips
Katie Dinelle
Mary Kelly
Zachary Kaminsky

Toronto April 14th, 2025

Krembil Foundation
Alexandre Le Bouthillier
Graham Collingridge
Jahan Ali
Kohitij Kar
Matthew Johnson
Muhammad Mamdani
Nabilah Chowdhury
Patricia Arocena

Toronto June 20th, 2025

Centre for Addiction and Mental
Health
Ali Khan
April Khademi
Francis Jeanson
Gillian Strudwick
Laura Sikstrom
Lisa Strug
Maged Goubran
Taufik Valiante
Tristan Glatard
Yalda Mohsenzadeh

Vancouver June 13th, 2025

Djavad Mowafaghian Centre for
Brain Health, University of British
Columbia
Alona Nakonechnoya
Alex Wiseman
Frederico Bolanos
Golnoosh Samei
Ipek Oruc
Jeff LeDue
Martin McKeown
Tim Murphy

Additional meetings (virtual)

Joelle Pineau (QC)
Jeannie Shoveller (NS)
Doria Grant (NS)

Brain Canada Foundation is a national registered charity that enables and supports excellent, innovative, and paradigm-changing brain research in Canada. By fostering collaboration and leveraging public and private funds through the Canada Brain Research Fund, a unique arrangement between Brain Canada and the Government of Canada, through Health Canada, Brain Canada accelerates discoveries that improve health outcomes for people living with brain disorders, injuries, and diseases.

The potential for AI to overcome human limitations and improve brain health outcomes is significant. And the time to act is now.



Fondation
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