



Canada-UK Artificial Intelligence (AI) Initiative: building competitive and resilient economies and societies through responsible AI

Call specification

Version: June 2019

Partners: The Canada-UK Artificial Intelligence Initiative funding opportunity is offered by the three Canadian federal research funding agencies: the Canadian Institutes of Health Research (CIHR); the Natural Sciences and Engineering Research Council (NSERC); and, the Social Sciences and Humanities Research Council (SSHRC). In collaboration with four research councils from the UK Research and Innovation (UKRI): the Arts and Humanities Research Council (AHRC); the Economic and Social Research Council (ESRC); the Engineering and Physical Sciences Research Council (EPSRC); and the Medical Research Council (MRC). ESRC is coordinating this initiative.

(see end of call for specific funding agency descriptions)

Key dates *(please note dates may be subject to change)*

Webinar	17 July 2019
Compulsory: Intention to Submit deadline	19 August 2019 (23:00 UK time/18:00 Eastern)
Full Application deadline	12 September 2019 (16:00 UK TIME/11:00 Eastern)
PI response to external reviews	21 October 2019 – 28 October 2019

Notice of funding decision	w/c 6 January 2020
Funding start date	1 February 2020

Background

The increasing prevalence of artificial intelligence (AI), machine learning and automation in many aspects of everyday life is generating a wide range of challenges and opportunities. In the foreseeable future, the impact of AI will be felt not only at the individual level, including how humans interact with the world around them, but also at a broader societal and economic level, such as enhanced cybersecurity, more responsive healthcare, or smarter cities. Both Canada and the UK¹ are making significant investments in the development and deployment of AI tools and techniques.

There remains a need for research on how AI can be developed and applied to maximise its potential economic and social benefits across different segments of society, equitably and without bias. To work towards this objective, principles of equity and trustworthiness must also be consciously considered and integrated into AI research.²

The importance of this point is reflected in the number of guidelines, principles and recommendations that have been developed worldwide to this effect ([AI4People—An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations, AI Now 2018 Report](#), and [The Montreal Declaration for Responsible AI](#)). The development and application of Responsible AI can promote healthy, resilient, and inclusive societies, while driving a competitive edge for economic growth.

Recent evidence has shown that the lack of interdisciplinary collaboration in AI research is a significant gap, and that building bridges between the mathematical and computational sciences and other disciplines could enrich the field (AI Now 2018 Report). Applying an interdisciplinary approach to AI research may contribute to the inclusive, responsible and impactful development of AI technologies that can address important economic, societal, health and global challenges.

In response to this need, the Canadian funding agencies (CIHR, NSERC and SSHRC) and the UKRI (ESRC, AHRC, EPSRC and MRC) are offering an international, interdisciplinary joint call aimed at building competitive, resilient and healthy economies and societies through Responsible AI.

¹ UKRI supports significant portfolio of research, innovation and training activity and infrastructure across multiple disciplines that directly, or indirectly, relates to AI. This ranges from understanding and developing fundamental AI (AI in terms of the technologies/approaches themselves), includes the application of AI to multiple sectors (including its use as a research tool) and extends to the societal, ethical and economic impacts of AI.

² Millar, Jason et. al. “Accountability in AI: Promoting Greater Social Trust: Theme Paper for the G7 Multi-stakeholder Conference on Artificial Intelligence: Enabling the Responsible Adoption of AI,” CIFAR and The Ministry of Internal Affairs and Communications of the Government of Japan (December 6, 2018); West, S.M., Whittaker, M. and Crawford, K. (2019) “Discriminating Systems: Gender, Race and Power in AI,” AI Now Institute. Retrieved [here](#); Independent High-Level Expert Group on Artificial Intelligence, “Ethics Guidelines for Trustworthy AI,” European Commission (April 8, 2019).

Objectives

The objectives of this Canada-UK initiative are to:

1. Support innovative and cutting-edge interdisciplinary AI research that encourages the exploration of new interdisciplinary research methodologies, approaches and tools that cuts across **at least two** of the following research domains:
 - a. social sciences and humanities;
 - b. health and biomedical sciences; and
 - c. natural sciences and engineering (including computational and/or mathematical sciences).
2. Promote the development of Responsible AI through research that includes considerations of social-cultural variables (gender, racialised identity, socio-economic status, ability, etc.), biological variables (sex) and sustainable development in the research design, to ensure that the benefits of AI technologies and tools are shared broadly across society, to mitigate against potential harms, and to enhance the trustworthiness of AI.
3. Enhance existing and establish new partnerships between researchers in Canada and the UK in the area of AI research.
4. Enable the creation and uptake of research outputs/outcomes with key stakeholders (ie policy makers, decision-makers) in both Canada and the UK.
5. Enhance capacity for development of AI and/or its responsible applications through sharing of infrastructure and data, and joint training of early career researchers and trainees.

Please see the [Canadian Addendum](#) and the [UK Addendum](#) for further regulations governing eligibility here.

Subject matter

Any interdisciplinary proposal that aligns with the call objectives and incorporates a minimum of two of the three research domains indicated above is welcome. The following themes are illustrative examples.

- **Smart and agile communities/cities**
 - Infrastructure, housing, autonomous vehicles, transportation systems, mobility for aging societies, industrial applications.
- **Health and the human-machine interface**
 - Personalised medicine, drug discovery and development, environment, health, population and public health, human-machine interface, biometrics, monitoring and diagnostics, health services organisation and management.

- **Public services and security**
 - Employment, labour market dynamics, education, economic development, insurance and finance markets, entertainment, cybersecurity, health surveillance, emergency and disaster response, policymaking, justice, arts and culture.
- **Democracy and governance**
 - Trust and information, data analytics, social media, electoral systems, social cohesion and mobility, social impacts, data privacy and ownership, ethics, human rights, global governance structures, and training.
 - Access to algorithm training data, AI system training and public administrative data.

Funding

Up to £8.2 million in funding will be made available for this joint research call. Canada and the UK will support up to approximately 10 collaborative teams, subject to peer review assessment of the quality of the proposal. Each grant will require a Principal Investigator (PI) based in Canada and a PI based in the UK who will jointly develop one application and equally share leadership and project management for each project.

Financial contributions are subject to the availability of funds. Should funding levels not be available or are decreased due to unforeseen circumstances, the funders reserve the right to reduce, defer or suspend financial contributions to grants received as a result of this funding opportunity.

Canadian funding

- The total amount available for the Canadian component of the team from the Canadian funding agencies is C\$5.2 million, enough to fund up to approximately ten (10) projects.
- The maximum amount per project is \$C173,333 per year for three years for a total of C\$520,000 per project.
- These funds will support 100% of the direct costs of research as outlined in the [Use of Grants Funds](#) section of the Tri-Agency (CIHR, NSERC and SSHRC) Financial Administration Guide. Please see this guide for a complete listing of research regulations and the description of allowable costs and activities.

UK funding

- The total amount available for the UK component of the team from the UKRI is £5 million, enough to fund up to approximately 10 projects.
- UK grants will be awarded up to £625,000 at 100% full economic cost (fEC).
- UKRI will provide 80% fEC of eligible costs including salaries and indirect costs, and the host institution is expected to support the remaining 20%. The UK element of funding will not cover UK PhD studentships or requests for capital items. For further information see the UK Addendum.

The agencies also expect the costs on each side of the Atlantic to accurately reflect the research effort to be carried out in both countries. It is expected that the research effort on both sides should be comparable.

For further information, please read the [Canadian Addendum](#) and the [UK Addendum](#).

Duration

Projects must be three years in duration and must start on 1 February 2020.

UK applicants should refer to the [UK Addendum](#) for information on what the starting procedure entails. Please inform the relevant support staff in your organisation of this requirement to ensure the project starts on time.

Spending obligations

Due to the tight timeframe of this call, successful UK research organisations will need to adhere to strict spending requirements. For this call, the end date of the proposed research should be no later than 31 January 2023. The UK payment profiles are likely to be slightly irregular for this scheme.

Although project work is anticipated to be completed by 31 January 2023, the Canadian funding agencies provide authorisation to use funds for an additional year after the expiry date of the grant thus providing investigators until 31 January 2024 to spend any remaining funds of the Canadian portion of the grant.

Researchers should be aware that there will be financial reporting requirements for both Canada and the UK relating to successful grants. All funded projects will also be required to submit a final joint Canadian-UK report to UKRI-ESRC at the end of the project.

Eligibility

For support under this call, applications must be submitted by the deadline, following all set requirements.

Researchers may only submit one application to this call as Principal Investigator (PI), but may be involved in more applications if listed as a Co-Investigator.

Both PIs should clearly indicate which domain they represent and what their project will focus on to ensure interdisciplinary. The UK PI and Canadian PI must represent different domains.

Team members and/or stakeholders from non-academic sectors (ie industry, government or non-governmental participants, patients and citizens) may be included where relevant. (See the [Canadian Addendum](#) and the [UK Addendum](#) for further information.)

The project team must include:

- Researchers representing research that cuts across **at least two** of the following domains:

1. social sciences and humanities
 2. health and biomedical sciences
 3. natural sciences and engineering (including computational and/or mathematical sciences).
- A country-specific Principal Investigator from both Canada and the United Kingdom who must be clearly identified
 - The Principal Investigator based in Canada leading the Canadian component must be an independent researcher and appointed at an eligible Canadian postsecondary institution at the time of application (see the [Canadian Addendum](#)) to be considered for Canadian agencies funding
 - A Principal Investigator at a UK research organisation eligible for [UKRI funding](#). (For proposals within the remit of the MRC also see [the additional information in section 1.1 of the MRC's standard Guidance for Applicants](#)). For additional requirements please see the [UK Addendum](#).

Please note, the focus of this call is to foster collaboration between UK and Canadian researchers to advance research in the area of artificial intelligence. It is recommended to consider the collaboration aspects carefully. The funders are not seeking to fund Principal Investigators, co-investigators and researchers outside of the UK and Canada through this initiative. For more information see the Canadian Addendum and UK Addendum.

Applications that are not deemed to be eligible will be withdrawn from the competition.

Applications failing to comply with eligibility requirements and application instructions will be declared ineligible and will not be evaluated.

Budget considerations

Applicants will be required to follow the budget eligibility regulations outlined in the [Canadian Addendum](#) and the [UK Addendum](#).

How to Apply

- **Intention to Submit (ItS)**

The applicants must submit a compulsory short Intention to Submit (ItS) by 23:00 British Summer Time (UK time) and 18:00 Eastern on 19 August 2019.

The ItS must be completed online using the [electronic form](#).

Please note: ItS must be submitted by the PI based in the UK (on behalf of both the UK and Canadian applicants). The PI based in Canada is not required to submit an ItS to the Canadian funding agencies.

Failure to submit a valid ItS will invalidate any submitted Full Application.

The Canadian funding agencies and the UKRI will undertake eligibility checks of the PIs and their respective organisations, but not the remit or relevance at this point; any ineligible applications will be withdrawn from the competition. Applicants should not await a response from the funders following the ItS submission or registration, but continue with the development of the full proposal to be submitted by 16:00 British Summer Time (UK TIME) and 11:00 Eastern on 12 September 2019. The Canadian funding agencies and the UKRI will use the ItS to help prepare for the review process.

- **Full Application**

The applicants must submit the full application by 16:00 British Summer Time (UK time) and 11:00 Eastern on 12 September 2019.

The applicants must jointly develop a common research plan and jointly prepare the full application.

Note: The PIs cannot change between the ItS submission and the full application submission, but additional participants can be added/removed at the full application submission.

The applicants must submit their full application to UKRI-ESRC via the UKRI Joint electronic submission (Je-S) system. Je-S is the electronic submission system which is used by UKRI to provide a common electronic system that supports research administration. More detailed information can be found on the Je-S website.

Please refer to the [Je-S Guidance](#) document for more detailed information on how to submit the full application. Care and attention must be given in completing the application, and therefore we encourage all applicants to follow the specific [Je-S Guidance](#) document when preparing to submit their application. We may reject proposals that are not completed correctly, or ask applicants to amend the proposal as a condition of accepting it for processing.

For more information, see the Je-S Guidance document. For more information about additional Canadian requirements, see the Canadian Addendum.

Failure to submit all requested documents by the deadline may result in the application as a whole being declared ineligible.

Please note: Full applications must be submitted by the PI based in the UK (on behalf of both the UK and Canadian applicants). The PI based in Canada is not required to submit a Full Application to the Canadian funding agencies.

The final submission process is the responsibility of the UK-based host institution, and UKRI cannot accept responsibility for any delays that occur. It is recommended that applicants submit in good time prior to the call deadline. We strongly advise the UK-based PI to confirm with their relevant administrator that the proposal has been submitted successfully to the UKRI.

- **Relevance review**

The funders will perform a relevance review to confirm the project's alignment with objective number one. Applications that are not deemed to be relevant to the call will be withdrawn from the competition. For the UK component of the project [ESRC's resubmissions policy](#) will be applied.

Case for Support

All applications must include a Case for Support.

Proposals containing a Case for Support **exceeding the stated limit**, or not adhering to the specified format, will not be considered. For additional information and guidance please see the Je-S Guidance document.

Equality, diversity and inclusion

The partners encourage the inclusion and advancement of underrepresented groups in science as one means to enhance excellence in research, training and knowledge translation. Applicants are encouraged to complete the [CIHR Unconscious Bias Learning Module](#).

Sex, gender and health research

Applicants are expected to consider how sex as a biological and/or gender as a social determinant of health might shape artificial intelligence. Applicants are encouraged to visit the CIHR sex- and gender-based analysis [resource page](#) for more information on key considerations for the appropriate integration of sex and gender in their proposal.

Pathways to Impact

Applicants must develop a Pathways to Impact plan that is project-specific, flexible and focused on potential outcomes.

Applicants are required to:

- Identify and actively engage relevant users of research and stakeholders at appropriate stages.
- Articulate a clear understanding of the context and needs of users and consider ways for the proposed research to meet these needs or impact upon understandings of these needs.
- Outline the planning and management of associated activities including timing, personnel, skills, budget, deliverables and feasibility.
- Include evidence of any existing engagement with relevant end users.

For additional detailed guidance, please refer to Je-S guidance document, available on the [call webpage](#).

Additional guidelines for Data Management Plan (DMP)

All applicants that are planning to generate data as part of their research grant should co-develop a Data Management Plan (DMP) as part of the proposal. Governments and research funders across the globe are becoming increasingly aware of the value of digital research data and strongly support the creation of a robust and efficient environment for data stewardship internationally. The Canadian and UK funding agencies believe that research data collected with the use of public funds should, to the fullest extent possible, be managed following the FAIR principles (Findable, Accessible, Interoperable, Reusable). For additional detailed guidance on how to complete a DMP, please refer to the Je-S Guidance document. Applicants should also refer to the Canadian and UK Addenda for more information. **The DMP must not conflict with any terms and conditions, policies or other requirements of CIHR, NSERC and SSHRC, or AHRC, ESRC, EPSRC and MRC.**

Collaboration agreement, ethics and intellectual property

As the research projects will be carried out by multiple research organisations and project partners, the basis of collaboration between the organisations and project partners - including ownership of intellectual property (IP) generated during the project and rights to exploitation, costs of IP management, and ethics considerations - is expected to be set out in a formal consortia agreement between the research organisations involved. **The terms of collaboration and any agreement shall not conflict with any terms and conditions, policies or other requirements of CIHR, NSERC and SSHRC or ESRC, AHRC, EPSRC and MRC.** When collaborating, researchers must conform to their respective, applicable requirements on research involving humans, animals or stem cells.

Assessment criteria and decision-making process

To be funded, proposals must be internationally competitive and at a standard equivalent to that normally expected to be supported by all funders.

Applications will be adjudicated through a competitive process, led by UKRI-ESRC in collaboration with Canadian funding agencies and the other UK funders.

- I. Eligible applications will be externally peer reviewed and scored on the following scale:

Score	Description
6	Outstanding: The proposal is exceptionally strong in terms of excellence, feasibility and capability. The proposal makes an outstanding contribution to the aims of the initiative.
5	Excellent: The proposal is very strong in terms of excellence, feasibility and capability. The proposal makes an excellent contribution to the aims of the initiative.

4	Good: The proposal is strong in terms of excellence, feasibility and capability. The proposal makes a good contribution to the aims of the initiative.
3	Satisfactory: The proposal is sufficient in terms of excellence, feasibility and capability, but is not of a consistently high quality. The proposal makes some contribution to the aims of the initiative.
2	Fair/Some weaknesses: The proposal is weak in terms of excellence, feasibility and capability. The proposal makes a limited contribution to the aims of the initiative.
1	Poor: The proposal is very weak in terms of its excellence, feasibility and capability. The proposal makes little or no contribution to the aims of the initiative.

2. Applicants will then be offered the opportunity to provide a written response to these reviews where they may only offer clarifications and correct misconceptions. No new information may be added.
3. Applications will be assessed and scored by an in-person joint Canadian-UK panel committee, referring to the following scale:

Scores	Description
10	Exceptional proposals which are of exceptional merit in terms of their excellence, feasibility and capability. The proposal makes an exceptional contribution to the aims of the initiative.
9	Outstanding proposals which are of outstanding merit in terms of their excellence, feasibility and capability. The proposal makes an outstanding contribution to the aims of the initiative.
8	Excellent proposals which are of excellent merit in terms of their excellence, feasibility and capability. The proposal makes an excellent contribution to the aims of the initiative.
7	Very good proposals which are of significant merit in terms of their excellence, feasibility and capability. The proposal makes a very good contribution to the aims of the initiative.
6	Good proposals which are of considerable merit in terms of their excellence, feasibility and capability. The proposal makes a good contribution to the aims of the initiative.
5	Good proposals which are of potential merit in terms of their excellence, feasibility and capability. The proposal makes a satisfactory contribution to the aims of the initiative.
4	Proposals which are of some merit in terms of their excellence, feasibility and capability. The proposal makes some contribution to the aims of the initiative.

3	Proposals which are of some merit in terms of their excellence, feasibility and capability, but may not be of a consistently high quality. The proposal makes a limited contribution to the aims of the initiative.
2	Proposals which are of limited merit in terms of their excellence, feasibility and capability. The proposal makes a very limited contribution to the aims of the initiative.
1	Proposals which are poor in terms of their excellence, feasibility and capability. The proposal is flawed in its scientific approach, or is repetitious of other work, or is otherwise judged not worth pursuing; or, though possibly having sound objectives, appears seriously defective and/ or fails to meet the aims of the initiative.

4. A rank list of projects in order of excellence will be generated by the joint Canadian-UK panel committee and provided to the agencies.
5. Funding decisions will be made through a joint process overseen by the Canadian and UK agencies. Projects will be funded according to the rank list and subject to available funds.

However, the CIHR/NSERC/SSHRC and ESRC/AHRC/EPSRC/MRC reserve the right to adjust the process and introduce a shortlisting/streamlining step if a high number of proposals are submitted to the call.

Selection criteria

The following criteria will be used to evaluate applications:

Excellence

- Relevance to aims and all objectives of the call
- Originality of the proposal
- Interdisciplinarity of the approach and contribution to knowledge across different domains (social sciences and humanities; health and biomedical sciences; and natural sciences and engineering (including computational and/or mathematical sciences))
- Appropriateness of the theoretical approach or framework
- Appropriateness of the methods proposed
- Quality and potential for capacity-building (tools, methods, and advancing the cadre of skilled researchers including highly qualified personnel and trainees) within Canada and the UK
- Potential for meaningful impact (quality and appropriateness of knowledge mobilisation plans, including effective dissemination, exchange, and engagement with stakeholders within and/or beyond the research community)
- Value for money

Feasibility

- Appropriateness of the proposed timeline, and probability that the objectives will be met

- Quality and genuineness of the collaboration and associated management, governance arrangements and leadership
- Appropriateness and expertise of the team
- Appropriateness of the Data Management Plan (DMP)
- Appropriateness of the proposed costs

Capability

- Quality, quantity and significance of past experience and published and/or creative outputs of the applicants and team members, relative to their role in the project and to the stage of their career
- Quality and quantity of past contributions to the training and mentoring of trainees, postdoctoral researchers, and other highly qualified personnel relative to the stage in their career

Contacts

For further information, UK applicants should contact:

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Funding partners

Canada

[Canadian Institutes of Health Research \(CIHR\)](#)

At the Canadian Institutes of Health Research (CIHR), we know that research has the power to change lives. As Canada's health research investment agency, we collaborate with partners and researchers to support the discoveries and innovations that improve our health and strengthen our health care system.

[Natural Sciences and Engineering Research Council \(NSERC\)](#)

NSERC aims to make Canada a country of discoverers and innovators for the benefit of all Canadians. The agency supports university students in their advanced studies, promotes and supports discovery research, and fosters innovation by encouraging Canadian companies to participate and invest in postsecondary research projects. NSERC researchers are on the vanguard of science, building on Canada's long tradition of scientific excellence.

Social Sciences and Humanities Research Council (SSHRC)

SSHRC is the federal research funding agency that promotes and supports postsecondary-based research and research training in the humanities and social sciences. By focusing on developing talent, generating insights and forging connections across campuses and communities, SSHRC strategically supports world-leading initiatives that reflect a commitment to ensuring a better future for Canada and the world.

United Kingdom

The Arts and Humanities Research Council

The Arts Humanities Research Council (AHRC), part of UK Research and Innovation (UKRI), supports world-class research which furthers our understanding of human culture and creativity. AHRC is unique in the world as a national funding agency supporting both arts and humanities research. Each year AHRC provides some 700 research awards, 2,000 postgraduate scholarships, and numerous knowledge transfer awards. The quality and range of research supported by this investment of public funds not only provides social and cultural benefits but also contributes to the economic success of the UK.

The Economic and Social Research Council

ESRC, part of UK Research and Innovation (UKRI), is the UK's largest funder of research on the social and economic questions facing us today. It supports the development and training of the UK's future social scientists and also funds major studies that provide the infrastructure for research. ESRC support independent, high quality research which has an impact on business, the public sector and civil society.

The Engineering and Physical Sciences Research Council (EPSRC)

EPSRC, part of UK Research and Innovation (UKRI), is the main funding body for engineering and physical sciences research in the UK. By investing in research and postgraduate training, EPSRC is building the knowledge and skills base needed to address the scientific and technological challenges facing the nation. EPSRC's portfolio covers a vast range of fields from healthcare technologies to structural engineering, manufacturing to mathematics, advanced materials to chemistry.

The Medical Research Council (MRC)

MRC, part of UK Research and Innovation (UKRI), is at the forefront of scientific discovery to improve human health. MRC funded research tackle some of the greatest health problems facing humanity in the 21st century, from the rising tide of chronic diseases associated with ageing to the threats posed by rapidly mutating micro-organisms. MRC improves the health of people in the UK and around the world by supporting excellent science, and training the very best scientists.