Joint NSERC-CSE Research Communities Grants

Sponsor

Natural Sciences and Engineering Research Council of Canada (NSERC) and the Communications Security Establishment (CSE)

For More Information

NSERC-CSE Research Communities Program Page [1]

CSE Hiring Process and Security [2]

CSE Student Program [3]

Tri-Agency Guide on Financial Administration [4]

Tri-Agency Statement on Equity, Diversity, and Inclusion [5]

NSERC guide on integrating equity, diversity and inclusion considerations in research [6]

NSERC-CSE Research Communities Presentation (August 2023 [7])

NSERC and the Communications Security Establishment (CSE) will be hosting joint webinars on the new NSERC-CSE Research Communities grants. NSERC and CSE will provide an overview of the Research Communities Grants and application process and answer any questions you may have about the first edition of this new funding opportunity. Researchers are welcome to submit and/or upvote any questions that you would like addressed during the sessions in advance using this Slido poll [8] (open until September 8th, 2023).

Date	Time	Language	Link
Tuesday, September 12	1:00pm - 2:30pm	English	Join webinar [9]
Thursday, September 14	1:00pm - 2:00pm	French	Join webinar [10]

Description

The Natural Sciences and Engineering Research Council of Canada (NSERC) and the Communications Security Establishment (CSE) are partnering to fund Research Communities to conduct unclassified research on cutting-edge technologies in areas of strategic importance to

CSE and the Government of Canada. A Research Community is defined as a group of researchers — and their research personnel (i.e., students, post-doctoral fellows and research professionals) — from multiple Canadian universities working in related domains and sharing NSERC-CSE funds awarded to their project(s). The first Research Communities grants focus on robust, secure and safe artificial intelligence (AI). **CSE is the sole partner organization; no additional partner organizations will be accepted.**

CSE is Canada's foreign signals intelligence agency and technical authority for cyber security and information assurance. CSE is home to the Tutte Institute for Mathematics and Computing (TIMC), where researchers work with government, academia and industry to tackle scientific challenges related to CSE's mission. Data science and AI research at TIMC focuses on extracting information from large and complex datasets. Researchers aim to robustly, securely, and safely gather, parse and extract salient information from those datasets.

Objectives

- Generate new knowledge in robust, secure and safe AI from either a model-centric or data-centric view;
- Enhance the capacities of Canadian universities to undertake research related to robust, secure and safe AI;
- Help produce a new generation of data scientists and engineers sensitive to the issues around robust, secure and safe AI.

Context
In 2019, member countries of the Organisation for Economic Co-operation and Development (OECD), including Canada, adopted the AI Principles [11] for responsible stewardship of trustworthy AI. Article 1.4 [12] of the AI Principles states that "AI systems should be robust, secure and safe throughout their entire lifecycle so that, in conditions of normal use, foreseeable use or misuse or other adverse conditions, they function appropriately and do not pose unreasonable safety risk. To this end, AI actors should ensure traceability, including in relation to datasets, processes and decisions made during the AI system lifecycle, to enable analysis of the AI system's outcomes and responses to inquiry, appropriate to the context and consistent with the state of art. AI actors should … apply a systematic risk management approach to each phase of the AI system lifecycle on a continuous basis to address risks related to AI systems, including privacy, digital security, safety and bias."

A typical AI lifecycle includes the following steps; however, this process is not linear, as each step may feed back into the previous steps:

- Scope project
- Collect and process data
- Train and interpret models
- Validate and verify models
- Deploy models
- Operate and monitor model health and data drift.

Robust, secure and safe AI can be approached from the following perspectives: data-centric,

model-centric and people-centric. While the people-centric approach is important, **CSE focuses on the mathematical and statistical perspectives; the data-centric and model-centric approaches.**

A data-centric approach focuses on the early stages of the AI process, where the emphasis is on improving data quality to achieve the desired robustness. Examples of data-centric approaches include data understanding (including analysis of bias), data validation and cleaning, and data augmentation. There is comparatively little research on methods for improving and/or responding to data quality issues. For this reason, **CSE will favour proposals that incorporate data-centric approaches.**

A model-centric approach focuses on the latter stages of the AI process, where the emphasis is on developing models that are robust in the presence of low-quality data. Examples of model-centric approaches to robustness and security include detection and handling of out-of-distribution data, anomaly detection and uncertainty estimation.

Eligibility

Canadian university researchers must be eligible [13] to receive NSERC funds. CSE encourages researchers from multiple universities working in related domains to apply as a group to form a Research Community. However, **only one application per researcher** will be accepted under this call for proposals (as either applicant or co-applicant). CSE reserves the right to review and approve the list of Research Community members, including collaborators, prior to their engagement with the research team.

This first Research Communities grant(s) will support **unclassified** research focusing on robust, secure and safe AI. However, the funding is conditional on the applicant, or one of the co-applicants, and some of the Research Community members (i.e., professors, students and post-doctoral fellows) travel to Ottawa to conduct **classified** research at CSE throughout the grant period. See Classified research [14] for details.

The Alliance proposal will only describe the activities and the budget related to the unclassified component of the research.

Funding Availability

Individual projects can request either $700,000 (small project) or $1,400,000 (large project) per year over four years from NSERC. Grant funding is provided in equal parts by NSERC and CSE. **The aim is to fund one large or two small projects per call.** The first Research Communities grant(s) will be awarded in April 2024.

Indirect Costs

0%

Project Duration

4 years

Special Notes

Classified research
In collaboration with CSE researchers, the applicant, or one of the co-applicants, and some of the Research Community members will be required to work on classified research at TIMC, located at CSE's Edward Drake building in Ottawa.

Applicants must ensure that they can respect the following conditions or CSE reserves the right to reject the LOI or terminate the grant:

- When submitting the LOI, the applicant, or at least one of the co-applicants, must be a Canadian citizen, eligible for a TOP SECRET security clearance [2], and willing to work in Ottawa at CSE for at minimum two weeks per year. The identified researcher(s) must maintain their security clearance for the entire grant period.
- Within one year of the grant award, the grant recipient must submit the names of additional Research Community members (i.e., professors, students and post-doctoral fellows) who are Canadian citizens, eligible for a TOP SECRET security clearance, and willing to work in Ottawa at CSE.
    - Students are welcome under CSE's Student Program and will be expected to complete at least one semester of work at CSE. See Additional Details below.
    - Post-doctoral fellows and professors are welcome through CSE's Interchange Program; the length of their visits will be variable. See Additional Details below.
- Over the grant period, the grant recipient must continue to submit the names of Research Community members (i.e., professors, students and post-doctoral fellows) who are Canadian citizens, eligible for a TOP SECRET security clearance, and willing to work in Ottawa at CSE as described in the previous bullet.

Additional Details: Students working on classified research at CSE will be hired through CSE's Student Program [3]. Applicants, co-applicants, professors and post-doctoral fellows will be hired through CSE's Interchange Program. Under the Interchange Program, incoming participants (secondees) will remain employed by their home organizations (universities), to which CSE will reimburse salary costs. For more information, please contact alliance_cse-cst@nserc-crsng.gc.ca [15].

Deadlines

If College-level review is required, your College will communicate its earlier internal deadlines.

Type	Date	Notes
Internal Deadline	Wednesday, October 11, 2023 - 4:30pm	**Letter of Intent (LOI)**

Type	Date	Notes
		The Nominated Principal Investigator must submit their LOI (following the attached template) through NSERC's online system [16] by 4:30pm on October 11, 2023. The LOI is mandatory to progress to the next stage. A complete, signed OR-5 form is required at this stage. To discuss CARE-AI [17] considerations, consult with Kevin Matsui (kevin.matsui@uoguelph.ca [18]), Managing Director, CARE-AI, prior to submitting your letter of intent.
External Deadline	Wednesday, October 18, 2023 - 8:00pm	**Letter of Intent (LOI)** The Research Services Office will submit the completed LOI directly through NSERC's online system on behalf of the research team.
Internal Deadline	Wednesday, January 10, 2024 - 4:30pm	Full Application (by invitation only) Based on the review of the LOI, applicants may be invited to proceed with a full application. NSERC will send a letter of invitation to applicants, and only applications that have been invited to submit will be accepted. The letter of invitation will provide instructions on how to apply to this call under the Alliance grants program.

Type	Date	Notes
		Applicants must submit the Full Proposal in NSERC's online system [16] and notify research.services@uoguelph.ca [19].
External Deadline	Wednesday, January 17, 2024 - 8:00pm	**Full Application** The Research Services Office will submit the completed Full Application directly through NSERC's online system on behalf of the research team.

How to Apply

Step 1 – LOI
To engage CSE in supporting their research project, applicants must submit an LOI via NSERC's online system [16] using the LOI template [20] by October 18, 2023, 8:00 p.m. (ET).

The LOI must not exceed three pages, excluding references, and must:

- Describe the research team and identify the researcher(s) (applicant and/or co-applicant(s)) who are eligible for a TOP SECRET clearance. No changes in the research team (applicant and co-applicants) composition are permitted after NSERC and CSE review and approve an LOI;
- Outline the proposed research and explain how the project will address one or more specific research objectives and how it will help enable robust, secure and safe AI. Include a summary of the proposed research project's main objectives and challenges and the expected outcomes and benefits for Canada.

In addition to a completed LOI template, applicants must provide the following documents and information to NSERC via the online system:

- A preliminary budget (in Canadian dollars) and accompanying justification to cover the direct cost of the proposed research according to eligible expenses listed in the Tri-agency Guide on Financial Administration [4]. The total amount requested from NSERC can be either $700,000 (small project) or $1,400,000 (large project) per year over four

years. These amounts include CSE's contribution to the grant funding.
- A completed personal data form with CCV attachment [21] (NSERC form 100A) for the applicant and all co-applicants.

Instructions for submitting documents and information to NSERC:

- Log in to NSERC's online system [16] and select "Create a new form 101";
- Select "Research partnerships programs", then "Alliance grants";
- For the Proposal type field, select "Letter of Intent";
- For the Type of call field, select "CSE – Research Communities" from the drop-down menu as appropriate.

NSERC will internally review the eligibility of the applicant and the co-applicants to receive funds from NSERC under the Alliance grant program. The NSERC eligibility criteria for faculty [22] apply. CSE will review the LOI to determine which proposals meet the objectives detailed above.

The LOI will be evaluated against the following criteria:

- Alignment of proposed research project with topic of the call, including consideration of breadth and/or depth of focus;
- Likelihood of impact of proposed research project on CSE operations;
- Potential for direct collaboration between Research Community members and CSE researchers.

Step 2 – Full application (by invitation only)
Based on the review of the LOI, applicants may be invited to proceed with a full application. NSERC will send a letter of invitation to applicants, and only applications that have been invited to submit will be accepted.

The letter of invitation will provide instructions on how to apply to this call under the Alliance grants program. Full applications must be submitted via NSERC's online system.

Full applications will first undergo an administrative assessment by NSERC to ensure they are complete and comply with all requirements. Once the administrative assessment is completed, NSERC will conduct a merit assessment of the applications through a selection committee of external peer reviewers with expertise directly related to this call. The merit of the full applications will be assessed against the following four equally weighted evaluation criteria (more details available on program website [14]):

- Relevance and expected outcomes
- Proposal
- Project team
- Training plan.

Upon completion of the external peer review, NSERC will determine the merit of the proposal by

applying merit indicators based on the assessment of the evaluation criteria by a Selection Committee and establish a list of fundable applications from which CSE will select the one(s) to be funded based on the following additional criteria:

- Alignment of proposed research project with topic of the call, including consideration of breadth and/or depth of focus;
- Likelihood of impact of proposed research project on CSE operations;
- Potential for direct collaboration between Research Community members and CSE researchers.

NSERC and CSE aim to announce funding decisions by April 2024.

Information For Co-applicants

Only one application per researcher will be accepted under this call for proposals (as either applicant or co-applicant).

Attachment(s)

Attachment	Size
LOI template [23]	237.28 KB
NSERC-CSE Research Communities Presentation (August 2023) [24]	2.26 MB

For Questions, please contact
For program questions for NSERC, please contact: alliance_cse-cst@nserc-crsng.gc.ca [25]

For CARE-AI considerations, please contact: kevin.matsui@uoguelph.ca [18]

Office of Research

Rachel Lee, Senior Grants and Contracts Specialist
Research Services Office
rachell@uoguelph.ca [26]
Alert Classifications**Category:**
Funding Opportunities and Sponsor News

Disciplines:
Health and Life Sciences
Information and Communications Technology

Links
[1] https://www.nserc-crsng.gc.ca/Innovate-Innover/CSE-CST/CFP-ADP/RSSAI-SIARSS/index_eng.asp
[2] https://www.cse-cst.gc.ca/en/careers/hiring-process-and-security
[3] https://www.cse-cst.gc.ca/en/careers/student-opportunities
[4] https://www.nserc-crsng.gc.ca/interagency-interorganismes/TAFA-AFTO/guide-guide_eng.asp
[5] https://www.nserc-crsng.gc.ca/InterAgency-Interorganismes/EDI-EDI/index_eng.asp
[6] https://www.nserc-crsng.gc.ca/Innovate-Innover/alliance-alliance/EDI_training-EDI_formation_eng.asp
[7] https://www.uoguelph.ca/research/alerts/sites/default/files/attachments/NSERC-CSE%20Research%20Communities%20Presentation%20-%20August%202023.pdf
[8] https://app.sli.do/event/u612orQbFjuAqsQfcFrLWu
[9] https://nsercvideo.webex.com/nsercvideo/j.php?MTID=mb819ff005ca7998dea058a55a1e70b96
[10] https://nsercvideo.webex.com/nsercvideo/j.php?MTID=m3ba6fe11061822cc165844ae89337c65
[11] https://oecd.ai/en/ai-principles
[12] https://oecd.ai/en/dashboards/ai-principles/P8\
[13] https://www.nserc-crsng.gc.ca/NSERC-CRSNG/Eligibility-Admissibilite/faculty-corpsprof_eng.asp
[14] https://www.nserc-crsng.gc.ca/Innovate-Innover/CSE-CST/CFP-ADP/RSSAI-SIARSS/index_eng.asp#5.2
[15] mailto:alliance_cse-cst@nserc-crsng.gc.ca
[16] https://ebiz.nserc.ca/nserc_web/nserc_login_e.htm
[17] https://www.care-ai.ca/
[18] mailto:kevin.matsui@uoguelph.ca
[19] mailto:research.services@uoguelph.ca
[20] https://www.nserc-crsng.gc.ca/_doc/Innovate-Innover/CSE-CST/NSERC-CSE-LOI-template-e.docx
[21] https://www.nserc-crsng.gc.ca/OnlineServices-ServicesEnLigne/instructions/100/100A_eng.asp
[22] https://www.nserc-crsng.gc.ca/NSERC-CRSNG/eligibility-admissibilite/faculty-corpsprof_eng.asp
[23] https://www-research.uoguelph.ca/research/alerts/sites/default/files/attachments/NSERC-CSE-LOI-template-e_0.docx
[24] https://www-research.uoguelph.ca/research/alerts/sites/default/files/attachments/NSERC-CSE%20Research%20Communities%20Presentation%20-%20August%202023.pdf
[25] http://alliance_cse-cst@nserc-crsng.gc.ca
[26] mailto:rachell@uoguelph.ca