

Collaborations in Artificial Intelligence and Geosciences (CAIG)

January 27, 2025

Program solicitation **NSF 25-530**

Proposal deadline: **April 2, 2025**
(due 5 p.m. submitter's local time)

GEO-CI WORKING GROUP



WEBINAR LOGISTICS

- Webinar (including Q&A) will be **recorded** and posted on the CAIG program page
- Following the presentation, time will be provided for general Q&A (next slide)
- Proposal-specific questions may be directed to Program Contacts listed on the CAIG program page
- <https://new.nsf.gov/funding/opportunities/caig-collaborations-artificial-intelligence-geosciences>

WEBINAR LOGISTICS

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PROPOSAL PREPARATION

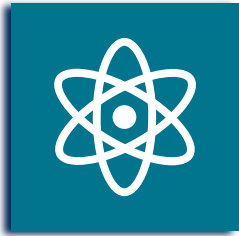
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OTHER CONSIDERATIONS

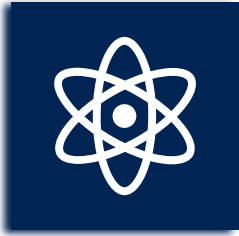
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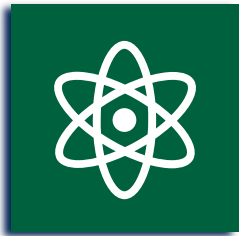
Zoom Webinar Set-up



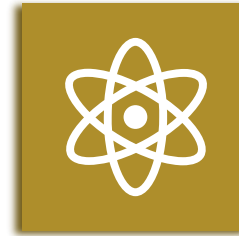
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You may submit questions at any time.
You may send questions anonymously:



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PROGRAM OVERVIEW

Topics to be covered:

- Scientific scope of CAIG
- Relation to other opportunities at the National Science Foundation

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Scientific scope of CAIG

“Geosciences” refers to the academic research communities supported by the Geosciences Directorate (GEO) at NSF, which includes the domains of ***atmospheric and geospace sciences, ocean sciences, Earth sciences, and polar sciences***

Directorate for Geosciences (GEO)

RISE

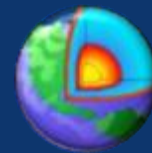
Research, Innovation,
Synergies, and Education (RISE)



Atmospheric
and Geospace
Sciences (AGS)



Ocean
Sciences
(OCE)



Earth
Sciences
(EAR)



Polar
Programs
(OPP)

Appropriate topic & scope for CAIG

Further details and examples of scientific topics that are supported in the geosciences and by CAIG can be found:

1. Review different GEO directorate programs

<https://www.nsf.gov/funding/programs.jsp?org=GEO>

2. Review the recent round of CAIG awards

<https://www.nsf.gov/awardsearch/>
(search for “CAIG”)



CAIG program officers

Name

Organization

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[https://www.nsf.gov/
geo/geo-ci/](https://www.nsf.gov/geo/geo-ci/)

Relation to other opportunities

Applications of existing AI methods to geoscience questions

- **Disciplinary science programs within GEO**

Foundational AI research that uses geoscience applications or datasets only for testing purposes

- **Programs within CISE/IIS or MPS/DMS**

New CI for AI-driven research

- **Cyberinfrastructure for Sustained Scientific Innovation (CSSI) or related programs in CISE/OAC**

Improving CI literacy and skills development

- **Training-based Workforce Development for Advanced Cyberinfrastructure (CyberTraining) program**





Frontera/Vista – UT Austin



Anvil – Purdue



Expanse/Voyager /PNRP
UCSD



Delta – U. Of Illinois



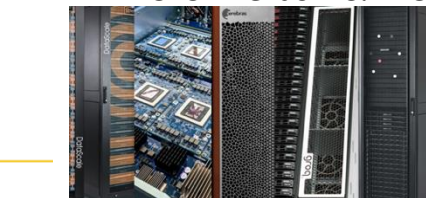
Neocortex/
Bridges 2 – U. Pittsburgh/CMU



Jetstream 2 – Indiana U



ACES - Texas A&M University



AI Testbed – Argonne National Lab



CloudLab



OpenMined



databricks



Google Cloud



Hugging Face



ANTHROPIC



Request AI computing and other resources through

<https://nairrpilot.org/>

Leveraging NSF-supported shared computing

*The solicitation does **not** support substantial cyberinfrastructure (CI) development; instead, proposers may consider using existing resources:*

- Advanced computing support available via the **ACCESS (Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support) program** - <https://access-ci.org/>
 - NSF PAPPG (24-1), Part I, Chapter 2, Section E-7
- Commercial **cloud computing resources** available via CloudBank Cloud Access - <https://www.cloudbank.org/faq>
 - *See Proposal Preparation Instructions in solicitation*



PROPOSAL PREPARATION

Topics to be covered:

- General preparation instructions
- Submission eligibility
- Merit review criteria
- Leveraging shared computing
- Other supplementary documents

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General preparation instructions

- **Title:** Please note that titles should be preceded with “CAIG: ”
- **Project Description:** Include **separate section(s)** with text describing how the proposal meets the **three** specific Merit Review Requirements
- **Budget:** There is no specific limit, but please keep in mind the following:
 - Projects may be **up to 3 years in duration**.
 - NSF expects to fund **5-9 projects** with anticipated **\$6,000,000 to \$10,000,000** in available funding
 - Awards are expected to fund interdisciplinary teams of **2-3 lead collaborating Senior Personnel** and associated students, postdoctoral researchers, research software engineers, and/or similar staff.



CAIG submission eligibility

Eligible organizations to submit proposals:

- Institutions of Higher Education (IHEs)
- Non-profit, non-academic organizations
- Tribal Nations

Other organizations may be involved via unfunded collaboration, subaward, or consulting arrangements

Senior personnel limits:

- An individual may be designated as Senior Personnel (which includes but is not limited to PI or co-PI) **on at most two proposals.**
- NSF's definition for "Senior Personnel" is provided in PAPPG Exhibit II-3



Special eligibility cases

1. Federally Funded Research and Development Centers (FFRDCs)
2. Foreign Collaborators

CAIG follows the general guidance provided in the NSF **Proposal & Award Policies & Procedures Guide (PAPPG)** (NSF 24-1)

Specifically: Part I, Chapter 1, Section E-2



Merit review criteria

Standard criteria:

Broader Impacts:

- The potential to benefit society and contribute to the achievement of specific, desired societal outcomes

Intellectual Merit:

- The potential to advance knowledge

Solicitation-specific criteria

(see “Specific Requirements” in Program Description):

Geosciences Advancement:

- How do the proposed activities contribute to advancing geosciences research and/or education in response to motivating science drivers?

AI Impact:

- What novel integration of AI is proposed and does it overcome significant methodological and/or capacity bottlenecks that inhibit research progress in the geosciences?

Partnerships:

- Does the proposal include mechanisms to develop meaningful interdisciplinary partnerships to support the intended Geosciences Advancement and AI Impact? Will partnerships benefit all project participants, including pathways for cross-training students and other researchers in the methods to be pursued?



Other supplementary documents

1. **Cloud Computing Resources (if applicable):** Required if requesting cloud credits through CloudBank.
 1. The cost of cloud credits should **not** be included in the main proposal budget.
 2. Keyword “CloudAccess” (oneword) must be included in the project summary.
2. **Letters of Collaboration (if applicable):** These are encouraged to demonstrate collaborative arrangements



OTHER CONSIDERATIONS

Topics to be covered:

- Future plans for CAIG
- Resources for proposers
- Q&A session

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Future plans for CAIG

- This program solicitation is the second iteration of this program.
- The current CAIG solicitation has second due date of **February 04, 2026**
- There are no definitive plans for CAIG in 2027
- As always, NSF aims to be responsive to community needs, directions, and priorities.
 - Subscribe to the RISE listserv for information about future AI programs and other cross-GEO opportunities
 - https://public.govdelivery.com/accounts/USNSF/subscriber/new?to_pic_id=USNSF_430

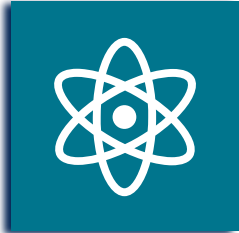


Resources for proposers

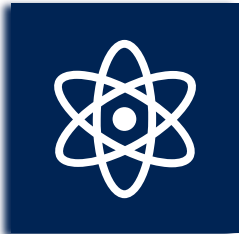
- Read the NSF PAPPG carefully! (NSF 24-1)
- Read the solicitation carefully! (NSF 25-530)
- This presentation will be posted on CAIG program page
- Proposers are encouraged to reach out to Program Contacts with specific questions.
 - *SUGGESTION: To facilitate well-informed advice from NSF, it is helpful to provide a 1-page project summary when reaching out. Ideally, such a summary would briefly address how the project responds to the NSF and solicitation-specific review criteria.*



CAIG Q&A

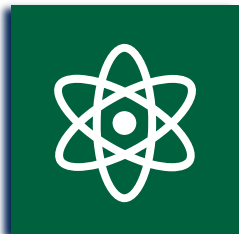


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☒ Send anonymously



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*Please direct further questions to any of the
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