



USC University of Southern California

OFFICE OF RESEARCH & INNOVATION

Request For Proposals Generative Artificial Intelligence (GenAI) Research Program Special Solicitation

FUNDING ORGANIZATION

USC Office Research & Innovation (OORI)

APPLICATION DEADLINE

5PM Pacific Time, January 15 Proposals submitted after this deadline will be rejected without review. When a due date falls on a weekend, federal holiday, or when USC offices are closed due to weather or other circumstances, the application deadline is automatically extended to the next business day.

SCIENTIFIC MERIT REVIEW

February - March

PROGRAMMATIC REVIEW

April - May

NOTIFICATION

June

EARLIEST AWARD DATE

July - August

AWARD PROJECT PERIOD

Maximum project period is one year

AWARD (UP TO)

Building GenAI Research Networks	\$100,000
GenAI Research Award	\$ 50,000
Collaborative GenAI Research Award	\$100,000

The number of awards is contingent upon the receipt of a sufficient number of meritorious applications. All awards are subject to the yearly availability of funds, terms and conditions, cost principles, and other considerations.

BACKGROUND

Generative AI (GenAI) is a type of artificial intelligence (AI) that can create a wide variety of data, such as images, videos, audio, text, and 3D models. It does this by learning patterns from existing data, then using this knowledge to generate new and unique outputs. GenAI is capable of producing highly realistic and complex content that mimics human creativity, making it a valuable tool for many industries such as gaming, entertainment, and product design. The University of Southern California (USC) recently launched the Center for Generative Artificial Intelligence and Society to examine how GenAI is reshaping the way humans live, work, learn, and play, and how it can be leveraged for the common good. USC has played a seminal role in the development of GenAI, and is poised to be an international leader in pioneering the use of GenAI to solve complex problems, create art, and even assist in scientific research. Given that the implications of this quickly advancing technology across all industries, disciplines, and fields is substantial, USC aims to provide funding for critical and timely cutting-edge research on GenAI.

OPPORTUNITY

USC's GenAI Research Program provides funding through creative mechanisms to explore the transformative impact of GenAI on the world, including its potential capacity to unleash human potential. Funding is available for researchers from across schools and disciplines. The GenAI Research Program will provide researchers with funds to engage in activities that will be valuable in enhancing the competitiveness of future GenAI grant proposals submitted to external sponsors. While financial support may be obtained from any external sponsor, proposals that target federal funding agencies are of greatest interest.

The GenAI Research Program will consist of three subprograms, as described below: (1) Building GenAI Research Networks; (2) GenAI Research Award; and (3) Collaborative GenAI Research Award. All funds will be awarded after the completion of a competitive scientific peer review and a programmatic review. Activities supported include workshops for planning innovative research projects, ongoing or planned research, and the development of research collaborations across multiple USC schools. The project period for awards made under this program will be one year.

All applicants will attend a Showcase sponsored by the Office of Research & Innovation, in which they present the results of their work supported under this award to the broader university community. A poster session will be available for graduate and postdoctoral students to present exciting findings that have resulted from their work on the project.

BUILDING GENAI RESEARCH NETWORKS

In order to fully realize the power and applicability of GenAI, the aim of this subprogram is to provide support for bringing together an interdisciplinary team of researchers to focus on salient research topics and directions which can benefit from the application of GenAI technologies. Building GenAI Research Networks awards will support meetings, seminars, workshops, and other activities that would facilitate the identification of an interdisciplinary team of faculty to form a network that can focus its expertise on applying GenAI to one or more topics of great interest (see **TOPICS** below). The network ideally would identify one or more gaps in the current application of GenAI and identify a strategy for solving complex problems. The award would support to development of a research structure and process for faculty working on these problems by which ideas are shared, knowledge is built, and research and dissemination capacities are strengthened.

Applicants are encouraged to build networks that include arts and humanities faculty. For this Request for Proposals, examples of arts and humanities focus areas include, but are not limited to, history, philosophy, law, religion, modern and ancient languages, language arts (literature, writing, oratory, rhetoric, poetry), visual arts (painting, sculpture, photography, filmmaking), fine and performing arts, digital media and cultural studies, arts education, dance, design, folk & traditional arts, literary arts, local arts agencies, media arts, museums, music, musical theater, opera, presenting & multidisciplinary arts, and theater. Proposals must designate a team that includes one Principal Investigator (PI) and at least one co-Principal Investigator; at least two separate schools within USC must be represented between the primary appointments of the PI and Co-PI.

It is not expected that the effort will identify a funding target (see **FUNDING TARGETS** below); rather, a return on investment will result: (1) when the team is able to submit a competitive proposal for an GenAI Research Award or a GenAI Collaborative Research Award; or (2) as the reputation of our faculty are enhanced as being nationally recognized for having a highly significant creative impact on the application of GenAI to a pressing societal problem.

GENAI RESEARCH AWARD

Awardees will receive funding for smaller-scale GenAI-focused research projects that demonstrate an ability to impact the field of research and applicant, with a likelihood of sustained funding or support beyond the project period. See more information under **TOPICS** below. It is expected that the Funding Target (see **FUNDING TARGETS** below) will be smaller in scope than a Funding Target that would be identified under the Collaborative GenAI Research Award. GenAI Research Award applicants are expected to include a team

that has already been formed and accomplished many of the activities described above for the Building GenAI Research Networks program. The GenAI Research Award provides support for research by a team working on a large proposal that will be submitted to a Federal funding agency or another external sponsor. The research supported under this award is meant to serve as preliminary data that will strengthen this application. The duration of the award is one year.

GENAI COLLABORATIVE RESEARCH AWARD

The goals of the GenAI Collaborative Research Award are comparable to those of the GenAI Research Award, with the exception that the Collaborative Award needs to include faculty from at least three USC schools. The Collaborative Award will support proposals focused on GenAI applied to one or more diverse research areas, including, but not limited to: information & data sciences, life sciences, engineering, physical sciences, social sciences, sciences, social work, education, business, law, and architecture, among others. The Collaborative GenAI Research Award provides support for research by a team working on a large proposal that will be submitted to a Federal funding agency or another external sponsor. The research supported under this award is meant to serve as preliminary data that will strengthen this application. The major difference between this program and the GenAI Research Program include identification of a significantly larger Funding Target (see **FUNDING TARGETS** below). The duration of the award is one year. Proposals must designate a team that includes one Principal Investigator (PI) and at least one co-Principal Investigator; at least two separate schools within USC must be represented between the primary appointments of the PI and Co-PI.

TOPICS

GenAI has a diverse range of applications that go beyond text, video, image, speech generation, and data augmentation. For instance, GenAI can be used for music generation, game development, healthcare, and more. Examples of the many possibilities for the application of GenAI include, but are not limited to, the following:

Healthcare: GenAI can help generate synthetic medical data to train machine learning models, develop new drug candidates, and design clinical trials. GenAI has already been used to design drugs for various uses within months, offering pharma significant opportunities to reduce both the costs and timeline of drug discovery. GenAI can convert X-rays and CT scans into more realistic images, which can be helpful for diagnosis. For example, by using GANs (Generative Adversarial Networks) to perform sketches-to-photo translation, doctors can get a clearer, more detailed view of the inside of a patient's body.

Materials Science: GenAI is impacting the automotive, aerospace, defense, medical, electronics and energy industries by composing entirely new materials targeting specific physical properties.

Chip Design: GenAI can use reinforcement learning (a machine learning technique) to optimize component placement in semiconductor chip design (floorplanning).

Synthetic Data: GenAI is one way of creating synthetic data, which is a class of data that is generated rather than obtained from direct observations of the real world. This ensures the privacy of the original sources of the data that was used to train the model. For example, healthcare data can be artificially generated for research and analysis without revealing the identity of patients whose medical records were used to ensure privacy.

Logistics and transportation: GenAI can accurately convert satellite images into map views, enabling the exploration of previously unknown locations. This can be especially useful for logistics and transportation applications focused on navigating new areas.

Like all powerful technologies, GenAI has the potential for being misused. The Office of Research & Innovation is very interested in supporting activities that aim to address ethical concerns and unintended consequences of the technology, from algorithmic bias, intellectual property rights, to deepfakes (digitally forged images or videos), and harmful cybersecurity attacks on businesses that include nefarious requests that realistically mimic an employee's boss.

RETURN ON INVESTMENT

It is expected that projects funded under this program will yield a return on investment of at least 10 times the funding received for an application submitted to this Request for Proposals. This will be determined by considering the magnitude of future funding awarded by federal agencies or other external sponsors that was enabled by inclusion of preliminary data and publications generated through this award.

FUNDING TARGETS

GenAI Research Award and GenAI Collaborative Research Award applications are required to apply to a federally funded grant program that broadly focuses on the implications of Generative AI and society and the technology's application to different research domains; below is an example of a relevant federal funding source:

- Future of Work at the Human-Technology Frontier: Core Research (FW-HTF) (NSF 23-543) (<https://new.nsf.gov/funding/opportunities/future-work-human-technology-frontier-core>). Annual Deadline: March
- National Science Foundation (NSF) Rapidly Accelerating Research on Artificial Intelligence in K-12 Education in Formal and Informal Settings (<https://new.nsf.gov/funding/opportunities/rapidly-accelerating-research-artificial>)
Deadline: Concept outlines may be submitted at any time
- National Science Foundation (NSF) Science of Learning and Augmented Intelligence (<https://new.nsf.gov/funding/opportunities/science-learning-augmented-intelligence>)
Deadline: August 2023, then February annually thereafter
- National Science Foundation (NSF) Expanding AI Innovation through Capacity Building and Partnerships (ExpandAI) (<https://www.nsf.gov/pubs/2023/nsf23506/nsf23506.htm>)
Deadline: Submission windows vary by year

RESOURCES FOR SUBMITTING GRANT PROPOSALS

Applicants selected for funding are required to contact Research Strategy & Development (RSD), a Research & Innovation suboffice dedicated to supporting faculty in the preparation of competitive applications to federal funding agencies. RSD has considerable experience in generating and submitting proposals to federal agencies. RSD can provide support services to applicants, including science writing, budget preparation, and supporting documentation collection. Specific support provided is contingent on RSD workload and prior commitments. Applicants should contact RSD by sending an email to robyngil@usc.edu.

RESOURCES FOR PROMOTING INNOVATION

Applicants selected for funding are required to contact USC Stevens Center for Innovation (USC Stevens). USC Stevens is the university's technology licensing office, responsible for the translation of USC research into products for public benefit through licenses, collaborations, and the promotion of entrepreneurship and innovation. USC Stevens staff can provide critical guidance related to the invention disclosure and technology licensing processes, as well as an overview of USC's policies related to intellectual property, researcher IP rights, and responsibilities, amongst other topics. Specific support provided may include organized events through Research and Innovation's Center for Excellence in Research, and is contingent on USC Stevens workload and prior commitments. Applicants should contact USC Stevens by sending an email to stvinfo@usc.edu.

PROPOSAL REQUIREMENTS

Applicants must carefully follow instructions. Information uploaded beyond what is requested will not be included in the proposal package provided to reviewers.

- a) **Brief description:** (not to exceed 60 words): A brief description of the proposed work.
- b) **Abstract:** (not to exceed 20 lines of text): Provide a stand-alone succinct description of the proposed work.
- c) **Narrative:** (not to exceed 5 pages): Page limits are inclusive of figures and tables and include 1” margins of single-spaced text in Arial font. The following headers should be included:
 - a. **Background, Significance, & Broader Impact:** Discuss the importance of the problem or critical barrier to the field that this project revises/addresses. In general, what is the importance of the project to USC, the research community, and society? What is the state of the research activity and scholarship at USC and elsewhere, and what are the important research questions for the topic?
 - b. **Approach:** Describe the scientific hypotheses and specific activities to be supported by the research award, and how these will contribute to the submission of a successful proposal to a federal agency.
 - c. **Funding Target (GenAI Research Award and GenAI Collaborative Research Award only):** Describe the specific federal funding opportunity to be pursued (including URL) to which you commit to applying.
 - d. **Project Team:** Teams must include Co-PIs from a minimum of two USC schools (for the Collaborative Award, faculty from at least three USC schools must be included). Proposals should include a detailed description of the proposal team, including a discussion of each team member’s scientific expertise and contribution to the proposed effort, as well as past and current research that is relevant to this effort. Discuss why the proposal team would be successful in pursuing this opportunity, and how the research expertise of the Co-PIs will be integrated through the proposed project.
 - e. **Timeline:** Provide a detailed timeline of activities and milestones to be completed, including a targeted submission date for the opportunity identified as the Funding Target.
- d) **Budget and Budget Justification** (not to exceed 2 pages): Specify a project start and end date. Utilize standard budget categories, only including the allowable budget cost categories as detailed in the **Grant Conditions** section.
 - a) **Return on Investment (GenAI Research Award and GenAI Collaborative Research Award applications only):** Applicants must identify an external sponsor grant program to which an application will be submitted and also identify future Funding Targets of at least 10 times the funds requested under this RFP.
 - e) **Grant Submission Commitment (GenAI Research Award and GenAI Collaborative Research Award only):** The proposal must include a statement in which the applicant commits to submit a proposal to the opportunity or opportunities identified as the Funding Target.
 - f) **Innovation Ecosystem Commitment:** USC Research and Innovation (R&I) is committed to establishing a thriving innovation ecosystem at USC that will build collaborations between USC researchers and venture capital firms, accelerators, incubators, small and large businesses, and foundations. R&I is working closely with USC University Advancement to develop these partnerships. The proposal must include a statement in which the applicant commits to contacting University Advancement at hpourman@usc.edu to discuss the potential for obtaining funding for research that may arise as a result of this research project.
 - g) **Active Funding:** List all sources of internal and external support awarded during the past five years, current or pending, for the Co-PIs and Co-Is. For each source, specify who on this proposal was

involved, their role on the project, title of the award, period, award amount, and sponsor (including subagency).

- h) **Letter(s) of Support:** Provide a letter(s) of support from the applicable individual(s); i.e., School/Department heads.
- i) **Scientific References** (not to exceed 2 pages): This includes citations listed in the narrative.
- j) **Curriculum Vitae** (not to exceed 5 pages per Co-PI/Co-I): Applicants may use any standardized CV format (e.g., NIH Biographical Sketch, NSF Biographical Sketch, etc.).

ELIGIBILITY

All tenured, tenure track, and Research, Teaching, Practice, and Clinical (RTPC) faculty (with the exception of lecturers, adjunct, and part-time faculty) may serve as Principal Investigators on [Sponsored Research Projects](#) at USC. Retired faculty may be called back and asked to serve as Principal Investigators as described in Chapter 10 of the [Faculty Handbook](#). Voluntary faculty may not serve as Principal Investigators. Eligibility requirements of our internal research programs are the same as those for being a PI on an external sponsored research project. Applications should also specifically describe the involvement of other faculty or key personnel who have agreed to participate in the project.

For the Building GenAI Research Networks and Collaborative GenAI Research Award programs, proposals must designate a team that includes one Principal Investigator (PI) and at least one co-Principal Investigator; at least two separate schools within USC must be represented between the primary appointments of the PI and Co-PI.

The following employee types may serve as Principal Investigators if a specific waiver is granted upon recommendation by the appropriate department chair(s), appropriate dean(s), and the Senior Vice President of Research and Innovation:

- Part-time faculty
- Certain staff positions, if eligible, including Research Scientists, Senior Research Associates, and Research Associates
- Postdoctoral Research Associates and Postdoctoral Teaching Associates

Postdoctoral Research Associates and Postdoctoral Teaching Associates, as defined by USC's Postdoctoral Scholars Policy, can also serve as co-principal investigators on sponsored projects without a waiver. To review the Postdoctoral Scholars Policy, please visit <https://policy.usc.edu/postdoctoral-scholars/>.

GRANT CONDITIONS

R&I's awards and grant programs are administered by the Research Initiatives and Infrastructure (RII) office.

- If a faculty has an industry relationship, an approved management plan must be in place prior to receipt of award (<https://disclose.usc.edu>). Teams that will form a startup should anticipate submitting a conflict of interest disclosure. Questions regarding conflict of interest and disclosures can be directed to Ben Bell in the Office of Compliance (benjamab@usc.edu).
- At the time of being notified by RII that an award will be made and as a condition of funding, awardees will provide to RII the name, title, and email address of a USC senior business official who will establish an internal funding account in which RII funds for the award will be transferred.
- Within one month of being notified by RII that an award will be made and as a condition of funding, awardees will provide RII with an account number and enable view access for the account, such that RII staff will be able to view the account balance. If this information is not provided to RII within this timeframe, RII may elect to rescind the award and use the funds to make an award to another applicant.
- Awardees and their graduate and postdoctoral students agree to participate in a Showcase event on the USC campus.

- Awardees commit to submitting in the future an application or applications to a funding opportunity (Funding Targets) sponsored by a federal agency.
- Awardees commit to contacting Research Strategy & Development (RSD) to explore obtaining support services for external agency grant submissions, including science writing, budget preparation, and supporting documentation collection. Awardees contact RSD by sending an email to robyngil@usc.edu.
- Awardees commit to contacting USC Stevens Center for Innovation to obtain guidance related to the invention disclosure and technology licensing processes, as well as an overview of USC's policies related to intellectual property, researcher IP rights and responsibilities, amongst other topics. Awardees contact USC Stevens by sending an email to stvinfo@usc.edu.
- Awardee commit to attend an in-person ceremony with Research & Innovation leadership.
- Failure to spend at least half of the awarded funds within six months of the project start date may result in the suspension of the remaining funds.
- This award will not provide financial support beyond the duration of the award and does not carry the opportunity for renewal.
- Awards include fringe benefits but are not assessed Facilities & Administration Costs (formerly known as Indirect Costs).
- Funds not spent by the end of the project period will be returned to R&I.
- Awardees have discretion in budgeting and re-budgeting funds to meet their research needs within the fund's guidelines and the terms of the proposal. However, funds may not be transferred to another project or other researchers or institutions.
- All USC rules, concerning conflict of interest, human subject research, animal research, etc., apply to projects funded under this program. Funding will only be provided following confirmation that all pertinent reviews have been submitted for approval by relevant committees (e.g., IRB, IACUC).
- *Building GenAI Research Networks*
 - Allowable Budget Expenses:
 - Faculty salary & fringe
 - Postdocs/graduate/undergraduate student Ras/administrative personnel salary & fringe, excluding funding student tuition and other student-related fees.
 - Other expenses
 - Non-allowable Budget Expenses:
 - Materials & Supplies
 - Equipment
 - Travel
 - Consultants
 - Subcontracts
- *GenAI Research Award*
 - Allowable Budget Expenses:
 - Faculty salary & fringe
 - Postdocs/graduate/undergraduate student Ras/administrative personnel salary & fringe, excluding funding student tuition and other student-related fees.
 - Materials & supplies
 - Other expenses
 - Non-allowable Budget Expenses:
 - Equipment
 - Travel

- Consultant costs
- Subcontracts
- *Collaborative GenAI Research Award*
 - Allowable Budget Expenses:
 - Faculty salary & fringe
 - Postdocs/graduate/undergraduate student Ras/administrative personnel salary & fringe, excluding funding student tuition and other student-related fees.
 - Materials & supplies
 - Other expenses
 - Non-allowable Budget Expenses:
 - Equipment
 - Travel
 - Consultant costs
 - Subcontracts

SCIENTIFIC REVIEW CRITERIA

Application review criteria will be based on the following:

1. *Scientific Approach*: Rigor and technical merit. This includes an assessment of the investigators, innovation, study design and research approach, and the research environment.
2. *Significance/Broader Impacts*: An assessment of the likelihood for the project to exert a sustained, powerful influence on the research field. Describe the impact on knowledge, practice, outcomes, or policy, societal benefit, and the contribution of the proposed work to scientific inquiry and discovery.
3. *Feasibility*: The applicant describes their relevant and necessary experience in research and administrative duties. Ability of the project to be completed within the designated project period.
4. *Potential of Future Funding Target (GenAI Research Award and GenAI Collaborative Research Award only)*: All proposals specify a Funding Target expecting to yield a return on investment of at least 10 times the funding requested has been specified, and this is an appropriate and realistic Funding Target based on the Co-PI's expertise and funding history with the specific subagency sponsoring the Funding Target. Applications focused on the arts or humanities can specify a return on investment significantly less than 10 times future funding.
5. *Budget*: Cost-effectiveness and availability of any support/match funding from a USC school or program. Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed activities.

PROGRAMMATIC REVIEW

In addition to a peer review, applications will be evaluated programmatically in terms of this program's and the university's strategic research priorities. Funding decisions will be made based on both peer and programmatic reviews. We will incorporate aspects of existing policies and procedures regarding funding decisions that are utilized by major federal funding agencies like NSF and NIH, i.e., proposals will be subject to scientific peer review and programmatic review. Programmatic review assures maximum efficiency for funding awards and strategic alignment with this program's and the university's strategic research priorities. While financial support may be obtained from any external sponsor, proposals that target federal funding agencies are of greatest interest.

DIVERSITY, EQUITY, AND INCLUSION

The R&I and RII strongly support a culture of diversity, equity, and inclusion. Proposals should incorporate meaningful DEI practices across the project team and proposed activities. This will be a consideration during the programmatic review.

REPORTING AND ACKNOWLEDGEMENT OF SUPPORT

Awardees will be required to submit a one-page progress report, which will be due six months into the project period and at the point of project period completion. This report must detail scientific, financial, and research performance over the preceding months.

PROPOSAL SUBMISSION

Submit your proposal application utilizing the RII application submission and reporting portal. Go to <https://rii.usc.edu/funding/oor-portal/> to log in or create an account using your USC email address.

FURTHER INFORMATION AND PROGRAM CONTACT INFORMATION

We encourage inquiries to RII concerning this funding opportunity and welcome the opportunity to answer questions from potential applicants. For additional information or inquiries, please send an email to rii@usc.edu with “Generative AI Seed Grants” in the subject line.

APPLICATION CHECKLIST

- Brief Description
- Abstract
- Narrative
 - Background, Significance, & Broader Impacts
 - Approach
 - Funding Target (GenAI Research Award and GenAI Collaborative Research Award only)
 - Project Team
 - Timeline
- Budget and Budget Justification
- Return on Investment
- Grant Submission Commitment
- Innovation Ecosystem Commitment
- Active Funding
- Letter(s) of Support
- Federal Agency Review Documents (as applicable)
- Scientific References
- Curriculum Vitae