

RSNA Research & Education Foundation Request for Application (RFA)

OVERVIEW INFORMATION

RFA Posted Date	December 20, 2024
RFA Number	REI-2024-AI
Funding Opportunity	RSNA Emerging Issues Grant
Funding Opportunity Topic	Advancing Artificial Intelligence (AI) Driven innovations through Multimodal Data Integration as applied to Radiology screening exams or to Incidental Findings on exams performed for other reasons
Announcement Type	NEW
Funding Opportunity Purpose	<p>The RSNA Research & Education Foundation (R&E Foundation) is invested in ensuring that the current and next generation of radiologists are able to meet the needs of our continuously evolving profession.</p> <p>With the expansion of medical imaging technologies, radiologists are faced with an overwhelming amount of data that requires more sophisticated methods for analysis. Advancements in Artificial Intelligence (AI) show promise with improvements in imaging diagnostic accuracy; however, there remain significant gaps in the integration of multimodal (e.g. combining radiology with histology, laboratory results, and/or clinic visit notes) data to improve patient and disease outcomes.</p> <p>The purpose of this RFA is to solicit proposals for innovative research projects that leverage AI to enhance early detection of life-altering disease, either on patient screening exams or as incidental findings on imaging performed for other reasons.</p>
Application Deadline	February 21, 2025
Application Instructions	Full applications must be submitted through the RSNA R&E Foundation online grant site. Eligibility requirements, application instructions, and other details are in the RFA full text announcement. Applications that do not comply with the instructions will not be accepted for review.
Scientific Merit Review	March 2025
Applicant Notified of Funding Outcome and Earliest Start Date for Funding	May 2025 Applicants will be notified of the funding outcome by email communication. Awardees must comply with the grant policies and procedures.
Contact	Keshia Osley Assistant Director, Grant Administration grants@rsna.org 630-571-7816

FULL TEXT OF ANNOUNCEMENT

Funding Opportunity Description

Background

Radiology plays a crucial role in healthcare, providing essential diagnostic information that aids in the diagnosis and treatment of a wide spectrum of conditions and diseases. Recent advancements in AI have demonstrated substantial potential to improve diagnostic accuracy and enable earlier detection of disease. The integration of multimodal data, including but not limited to imaging from other specialties, demographics, -omics (e.g. genomics or proteomics), laboratory, and other clinical data, offers an additional promising aspect to help train and refine AI algorithms to identify patterns more precisely and efficiently to aid the radiologist in interpreting images and guide decision-making.

Objectives

The specific objectives of this RFA related to screening (including primary screening exams and opportunistic screening of exams performed for other reasons) are to:

- Improve performance of primary or opportunistic radiology screening using AI-driven algorithms
- Develop AI-driven screening algorithms that improve patient-oriented outcomes such as morbidity, mortality, cost of care, or quality of life
- Develop AI-driven screening algorithms that improve disease-oriented outcomes such as accuracy, sensitivity, specificity, or positive/negative predictive value.

The specific objectives of this RFA related to incidental findings are to:

- Develop AI-driven algorithms capable of detecting incidental findings
- Develop AI-driven algorithms capable of effectively triaging and reporting incidental findings, including relative risk assessment
- Develop AI-driven algorithms capable of distinguishing normal from abnormal organs (e.g. abnormal size or signal intensity, presence of focal lesion)
- Develop AI-driven algorithms that allow for closed loop communication of incidental findings and drive appropriate and timely imaging follow up when indicated

Given the broad scope of the objectives in this RFA, it is understood that successful proposals may only address some or one of the listed objectives

Scope

Research proposals should address one or more of the following areas:

- Research should focus on early detection of life-altering disease, specifically those where early treatment or lifestyle modification can prevent subsequent negative patient-oriented outcomes

Award Information

Application Types Allowed Accepting new applications

Anticipated Number of Awards

To be determined, based on applications.

Award Budget

Application budgets with direct costs of up to \$100,000 will be considered.

Award Project Period

Grants of one year will be awarded. Funding for a subsequent year will be dependent upon successful completion of specific project milestones.

Selection Criteria

Applications will be reviewed on the following:

- Innovation
- Detailed description of patient data to be incorporated into the model as well as model validation and personal health information (PHI) privacy considerations
- A comprehensive understanding of potential positive and negative unintended consequences of their research, including impacts on healthcare costs and health disparities among marginalized patient communities
- Expected impact of the intervention on the investigators' home institution patients and on the general public
- Knowledge of and experience within the specific topic
- Investigators with affiliation or demonstrated collaborative efforts with community partners
- Well-defined needs assessment that articulates current healthcare gaps to be addressed
- Metric-based outcomes analyses that demonstrate achievement of objectives
- Scalability/expandability, ability to be translated into clinical practice
- Content monitoring, update strategy and sustainability
- Timeline and Milestones to completion (will be used to determine if subsequent funding is merited)

Eligibility Information

Applicants (Principal Investigator) of all levels are welcome to apply, including residents and private practice members. Applicants must be an RSNA member the time of application and throughout the duration of the award. If the applicant is a non-dues paying member, one or more of the co-investigators must be a dues-paying member.

Other investigators may include:

- Co-PIs from the same or other institutions
- Individuals outside of radiology
- Community partners
- Other professionals as needed

Application Instructions

I. Summary of Proposed Research Plan

This section, when separated from the rest of the application, should serve as a succinct and accurate description of the proposed project. The summary should include the long-term goals of the proposed research to the radiologic community. Abstract not to exceed 500 words.

- A. Title
- B. Abstract
- C. Short Abstract

I. Applicant(s)

A. Professional Data:

- i) Institution
- ii) Department
- iii) Faculty position/rank
- iv) Time allocated to the proposed project, and to other duties. Specify percent and time frame.

B. Biosketch:

NIH-style biosketch, limited to 5 pages.

Please see <https://grants.nih.gov/grants/forms/biosketch.htm> for the NIH biosketch blank form, instructions, and sample. Please use the non-fellowship biosketch for all R&E grant applications.

C. Other Investigators/collaborators:

Other investigators/collaborators who will contribute significantly to the project should be listed. Include a description of their background, experience and expertise, and the role(s) they will play in the proposed research project.

Biosketch: NIH-style biosketch, limited to 5 pages, or each investigator/collaborator with a major role in the project.

A. Research Plan

Detailed Research Plan:

Not to exceed 5 pages. Use 0.5" margin" and size 11 Arial font. Figures and tables are included in the five-page limit. Additional pages may be included for references. Appendices may be included; however, appendices should not be used as an extension of the detailed research plan.

The detailed research plan should consist of the following:

Introduction:

- Rationale and purpose: describe why the project should be undertaken.
- Specific Aims and Objectives
- What makes the proposal unique?
- What are the intended outcomes or expected results? Will the proposed project result in a deliverable product/intellectual property?
- Previous Experience: Relevant preliminary work/prior experience of investigator.

Project Plans:

- What specific activities will be done to achieve the project objectives?
- Present a specific timeline of events to detail measurable milestones toward success of the completed project.
- Outcomes
- Dissemination: Describe how the result / intervention will be made available to RSNA members.

Evaluation

- Evaluation is one of the most common areas of weakness in grant applications; considerable attention must be paid to this area in all successful applications. How will the outcomes of the project be assessed in terms of the purpose and objectives? Can the outcomes be quantitatively assessed? What are the data structures to support such quantitative measurements?

Research Assurances

- Research grant projects may involve human subjects and require Institutional Review Board (IRB) or equivalent ethical approval. It is the responsibility of the applicant to contact their IRB office to inquire if IRB approval is required for the proposed project and to publish subsequent manuscripts. Applicants do not need research assurance approvals at the time of application; however funded grant recipients will be required to submit appropriate approval notifications before grant funds are released.

References

B. Location of Study:

Specify the primary institution, department, and country where the education project will take place. List secondary institutions, departments, and countries if applicable.

C. Resources and Environment:

Describe the facilities, support services, educational resources and/or other services that will be available for this project.

IV. **Budget**

A. Detailed Budget:

Since plans differ, no specific format is required for this section. However, a complete description of the projected use of funds will assist the study section reviewers in determining the project's feasibility. The budget should be a complete and detailed listing of the costs associated with the proposed program, including part-time salary support, supplies and materials, etc. Specify the following:

- Total project budget (direct costs)
- Amount Requested
- Explanation of how costs not covered by this grant will be paid (departmental funds, other grants, etc.)
- Complete budget justification

Note: The RSNA Research & Education Foundation does not pay institutional overhead costs or indirect costs. Travel expenses for the RSNA Scientific Assembly and Annual Meeting may not be paid by this grant.

B. Other Sources of Support (pending and received):

Other non-conflicting sources of support for the proposed activity are encouraged and should be identified.

C. Award Payment Information:

To facilitate fund disbursement if the grant is approved for funding, please supply the payee information and mailing address. This information is available through the institution's administration or grants and contracts office. The institution will serve as the fiscal agent.

V. **Letters**

Letters of chair and/or institutional support are required. If the project involves significant collaboration with individuals outside of the investigator's institution, letters of agreement may be included. Additional letters of support are not required or accepted.

VI. **Signatures**

- Department Chair
- Grant Administrator
- Grant Applicant

GRANT APPLICATION REVIEW INFORMATION

Applications are reviewed using an NIH-style study section and the NIH overall impact scoring system of 1 (exceptional) to 9 (poor). The RSNA Study Section is comprised of experts in the radiologic sciences with specific expertise and experience in health and healthcare disparities.

One primary and two secondary reviewers will be assigned to each grant application. After initial, individual review, the study section members will convene for group discussion of each meritorious grant application and assign a final overall impact score. Study Section members will use the following review criteria to assign an overall impact score for each application.

Overall Impact:

After considering all the scored review criteria, briefly summarize the significant strengths and weaknesses of the application and state the likelihood of the project to exert a sustained powerful influence on the field. Briefly summarize the significant strengths and weaknesses of the application.

Scored Review Criteria:

- Significance and Innovation:
Does the research address an important and relevant problem in which imaging may play an important role? What is the likely impact on health and healthcare disparities if successful? Is the research to be considered innovative? Innovation and significance are also important parameters.
- Approach
Is the hypothesis clear and well developed? Are the experiments well designed and appropriate to test the hypothesis? Is the proposed statistical analysis of the data appropriate for the study design? Is there a reasonable chance of completion within the time frame of the grant? Is the budget realistic for the research proposed? Is there a suitable plan for the protection of human subjects as well as does the investigator address issues related to inclusion based on gender, minorities, and children?
- Investigators
Is the PI capable of providing both administrative and scientific leadership to the development and implementation of the proposed program? Is there evidence that an appropriate level of effort will be devoted by the program leadership to ensure successful execution? If the project is collaborative or multi-PI, do the investigators have complementary and integrated expertise?
- Environment
Evaluate the commitment of the institution, the department and individual to provide adequate support for the applicant. Is appropriate space and equipment available? Are the support faculties such as computer services and statistical assistance adequate?

Payment Schedule

Grant funds will be paid to the institution in two installments: Ninety percent (90%) at the time of award. The remaining Ten percent (10%) of the total grant award will be withheld by the Foundation, to be released only upon receipt of an acceptable grant final report.

Reporting

Grant recipients must submit an interim report 90 days before the close of the project. This interim report will determine the effectiveness and success of the program and will be used to determine if an additional year of funding will be awarded.

The final report must be submitted to the Foundation within 90 days after completion of the project.