



RSNA RESEARCH & EDUCATION FOUNDATION
REQUEST FOR APPLICATION (RFA)

OVERVIEW INFORMATION

RFA Posted Date	July 1, 2019
RFA Number	RSNARE-EI-AI
Funding Opportunity	RSNA Education Innovation Grant
Funding Opportunity Topic	Artificial Intelligence/Machine Learning Education: Basic AI/ML, Practical Applications or Implementation
Announcement Type	New
Funding Opportunity Purpose	<p>The Radiological Society of North America (RSNA) 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>To fulfill this goal, the RSNA is requesting applications to promote creation and dissemination of educational tools, technologies, materials and/or content of broad and ongoing value to the membership of RSNA for learning about artificial intelligence/machine learning as applied to radiology.</p>
Pre-Application Deadline *required for all applicants	<p>August 31, 2019</p> <p>No late applications will be accepted. Pre-applications must be submitted through the RSNA R&E Foundation online grant site, https://grants.rsna.org/grants. Applicants who score well on the pre-application will be invited to submit a full application, by the posted deadline date.</p> <p>Applications that do not comply with the instructions will not be accepted for review.</p>
Full Application Deadline *by invite only	<p>January 15, 2020</p> <p>Applications will be accepted from invited individuals only, based on favorable results of the pre-application.</p> <p>No late applications will be accepted</p>
Scientific Merit Review	March 2020
Applicant Notified of Funding Outcome	<p>May 2020</p> <p>Applicants will be notified of the funding outcome by email communication. Awardees must comply with the grant policies and procedures.</p>
Earliest Start Date for Funded Grants	July 1, 2020
Contact	<p>Keshia Osley Assistant Director, Grant and Award Administration kosley@rsna.org 630-571-7816</p>

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FULL TEXT ANNOUNCEMENT

Funding Opportunity Description

Purpose

The RSNA is requesting applications to promote creation and dissemination of educational tools, technologies, materials and/or content of broad, and ongoing value to the membership of RSNA for learning about artificial intelligence/machine learning as applied to radiology.

Background

The RSNA recognizes that recent advances in artificial intelligence and machine learning (AI/ML) have produced technologies that may reshape our fields and are likely to have an increasing impact. While there is wide recognition of the importance of AI/ML, much of the membership of RSNA have relatively little understanding of how it works, to what problems it may be applied or how it can be safely and effectively integrated into clinical practice and research. This grant opportunity is intended to facilitate the creation of educational resources that address this gap.

Education Objectives and Scope

AI/ML related technologies are likely to become part of the clinical toolset for the majority of professionals working in radiology in the near future. Understanding of AI/ML will likely become a professional requirement, just as understanding of CT and MR have become today. Also like CT and MR, while there will be a small percentage of medical professionals who understand the technologies deeply enough to engage in research and development efforts, the majority will not. This majority will need to understand AI/ML at a level that allows them to be informed purchasers, competent integrators, and effective users of AI/ML technologies and products. Educational tools, materials, content, and/or curricula or events are needed to address this AI/ML knowledge gap in the membership of RSNA. A wealth of AI/ML educational materials are already available on the Internet; the RSNA does not seek to duplicate materials that are already available. Successful proposals will describe how the product of the proposal will differ from what is currently available. Ideally, projects would provide educational resources that are relevant to as much of the RSNA membership as possible, in a form of delivery and format that is accessible to people doing full-time clinical work.

Applicants are reminded that this is a funding opportunity focused on education: proposals focused on development, application, or implementation of AI/ML systems rather than education about these topics are out of scope. Applications describing and testing dynamic difficulty through AI will be highly considered. Projects are intended to provide education for the membership of RSNA; projects targeted at education for non-member people or organizations developing AI/ML for radiology are out of scope.

Award Information

Application Types Allowed (New, Resubmission, Revision)

Currently accepting new applications

Anticipated Number of Awards

The RSNA R&E Foundation will award 1 grant, on condition the study section score for the top-ranked grant application falls within a quality threshold set by the R&E Foundation's Board of Trustees.

Award Budget

Application budgets are limited to \$175,000 direct costs in any project year.

Award Project Period

Grants of 1-3 years will be awarded for a maximum grant total of \$150-225,000. For multi-year grants, funding for subsequent years will be dependent upon successful completion of specific project milestones.

Audience/Learners

Educational activities should address the needs of:

Primary: Radiologists at all stages of their careers including those in-training as well as those who have completed residencies and/or fellowships.

Secondary: Non-radiologist clinicians, medical students and ancillary personnel such as radiology technologists may also benefit from these educational tools.

Educational Format(s)

Desired educational resources created through this grant should provide the RSNA membership with the knowledge and tools for training they need to understand, evaluate, create, select, integrate, and/or use AI/ML.

Development awards support the creation of a distribution plan during a project's early stages. Once production is completed RSNA prefers to be the primary source of dissemination of content developed as a result of this funding mechanism. The R&E Foundation's goal is to ensure educational materials resulting from award funds be made available to RSNA and its members at no cost. By accepting awarded funds, the PI and institution agree that any funds generated directly or indirectly from the sale, lease or distribution of the final product will be donated to the RSNA Research & Education Foundation. Final products will be reviewed and evaluated by RSNA. RSNA will promote, support, and host (if applicable) enduring content resulting from R&E-funded grants through various RSNA outlets.

Note: This grant program is not intended to fund projects for educational theory, development of RSNA annual meeting content, or advanced training in the discipline of education.

Selection Criteria

Applications will be reviewed on the following:

- Innovation
- Impact
- Knowledge of and experience within the specific topic
- Well-defined and researched needs assessments that identify current practice gaps of identified learners
- Linkage of educational needs to achievable learning objectives
- Incorporation of adult learning principles into the educational design
- Metric-based Outcomes analyses that demonstrate achievement of learning objectives
- Scalability/expandability
- Content monitoring, update strategy and sustainability
- Timeline and Milestones to completion (will be used to determine if subsequent years of funding is merited)
- Plan for sustainable product and incorporation into the "RSNA education system"

Outcomes Measures

Applicants should propose one or more quantifiable metrics by which the success of the educational materials may be measured. These may include measures of the success of the tool as a whole (e.g. adoption rate) and/or aggregate measures of the educational success of learners.

Eligibility Information

Applicant (Principal Investigator) must;

- be a dues-paying RSNA member at time of application and throughout the funding period

Other investigators may include:

- Co-PIs from the same or other institutions
- AI/ML expert in conjunction with a relevant clinical champion
- teaching/education experts
- other professionals as needed

PRE-APPLICATION - REQUIRED

Prospective applicants must submit a pre-application through the RSNA R&E Foundation grant application site, <https://grants.rsna.org/grants>, by the posted deadline date.

The pre-application must include the following sections in the order given and with headings as shown below:

- Descriptive title of the proposed activity
- Name(s), contact information and brief descriptions of the expertise, experience and specific roles of the PI(s)
- Name(s) and brief description of other key personnel (co-investigators) and their role(s)
- Participating Institutions
- Concept Summary/Abstract of the proposed education grant project. The abstract must include the following:
 - Educational objectives and description of how these meet the needs of RSNA membership
 - Describe the significance of the problem to be addressed, the applicant's innovative vision and educational resources to be created. Applicants should make clear how the planned vision is uniquely suited to the objectives and scope of the funding opportunity
 - Outline the format and method for delivery for educational resources
 - Description of how the proposed project differs from, complements and/or builds existing AI/ML educational resources
 - Describe the impact that the project will have
 - Plan to make the project sustainable beyond the grant
- Define any relevant partnerships and/or collaborations with the for-profit private sector, if applicable. Industry partners are allowed, however with the reassurance that any product produced with RSNA funding would be freely available to RSNA members

Use size 11 Arial font, single spacing, and 0.5" margins. There is no word limits for the abstract, however, the total length of the pre-application is not to exceed 3 pages.

FINAL APPLICATION – BY INVITE ONLY

Applicants who score well on the pre-application will be invited to submit a full application through the RSNA R&E Foundation grant application site, <https://grants.rsna.org/grants>, by the posted deadline date.

I. Summary of the Proposed Education Program

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

- A. Title
- B. Abstract

II. The Innovation/Development Team

At least one member must be a member of the RSNA.

A. Professional Data:

- i. Institution or organization
- ii. Department (if relevant)
- iii. Faculty position/rank (if relevant)
- iv. Time allocated to the proposed project, and to other duties. Specify percent and timeframe.

B. Biosketch:

NIH-style biosketch is 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 forms for all R&E Foundation grant applications.

C. Other Investigators/Collaborators:

- i. 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(se) they will play in the proposed project. To the extent possible, collaborators should be actively involved in each stage of the project, from initial application through analysis and reporting on the final project.
- ii. Include a NIH-style biosketch, limited to 5 pages, for each investigator/collaborated with a major role on the project

III. Content Categories

Applicants must address the following areas in their proposal.

Sections A (Education Plan) and B (Resources and Equipment) of content categories should be uploaded as one document. The Detailed Education Plan section should not exceed 5 pages. Use 0.5" margins 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 an extension of the detailed education plan.

A. Detailed Educational Plan

- i. Introduction
 - a) Rationale and purpose: describe why the project should be undertaken.
 - b) Present current needs assessment (concise, up-to-date literature/online review of existing material) with description of the gap the proposed project will address with any existing standard, product or curricula.
 - c) Objectives and Specific Aims.
 - d) What learner group(s) will be served by the project?
 - e) What makes the proposal unique?
 - f) What are the intended outcomes or expected results? Will the proposed project result in a deliverable product/intellectual property?
 - g) Previous experience: relevant preliminary work/prior experience of investigator(s).
- ii. Project Plans
 - a) What specific activities will be done to achieve the project objectives? Include specific collaborator roles and responsibilities.
 - b) Present a specific timeline of events to detail **quarterly** measurable milestones towards success of the completed project.
 - c) Define any relevant partnerships and/or collaborations with the for-profit private sector, if applicable. Industry partners are allowed, however with the reassurance that any product produced with RSNA funding would be freely available to RSNA members.
 - d) Dissemination: Describe how the product will be made available to RSNA members. Keeping in mind RSNA prefers to be the primary source of dissemination of content developed as a result of this funding mechanism. The R&E Foundation's goal is to ensure educational materials resulting from award funds be made available to RSNA and its members at no cost. By accepting awarded funds, the PI and institution agree that any funds generated directly or indirectly from the sale, lease or distribution of the final product will be donated to the RSNA R&E Foundation.
- iii. Evaluation
 - a) Evaluation is one of the most common areas of weakness in grant applications; considerable attention must be paid to this area in all successful grant applications. The evaluation plan should demonstrate how the project will be assessed in order to illustrate whether the project met its goals. How will you know the project was successful? How will you gather data to show you whether the project was successful?
- iv. Research Assurances
 - a) Education grant projects typically require Institutional Review Board (IRB) approval. It is the responsibility of the applicant to contact their institutional IRB office to inquire if IRB approval is required for the proposed project and to publish subsequent manuscripts. Provide the status of IRB for this project. 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.
- v. References

B. Resources and Environment

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

C. 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.

IV. Budget

A. Detailed Budget

A complete description of the projected use of funds will assist the study section reviewers in determining the project's scope and 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. Please specify the following:

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

NOTE: The RSNA R&E 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 sources of support for the proposed activity 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 research administration or grants and contracts office. The institution will serve as the fiscal agent.

V. Letters

A letter from the department chair should address each of the following:

- a) Amount of protected time (percent of time) that will be available to the applicant.
- b) Does the applicant have access to appropriate educational resources, including equipment, other materials, space, assistants and mentors?
- c) Will the educational and scientific environment in which the work will be done contribute to the probability of success?
- d) Will the activity benefit from unique features of the educational and scientific environment, subject populations or collaborative arrangements?
- e) Other factors or considerations that will lead to the short- and long-term success of the proposed project.

A letter (or email) of intent/agreement from each investigator or collaborator listed in the application.

- o Amount of dedicated time (percent of time) that will be available to the applicant. Letters must address only the deliverables that will be contributed to the project (equipment/supplies, time/expertise, etc.); letters should not include specific comments about the project or recommendations of the applicant. Letters should be written to the grant applicant, not to RSNA

VI. Signatures

- A. Department Chair
- B. Institutional Official
- C. Grant Applicant

Note: Original signatures are required, no electronic or digital signatures allowed. Print signature page, obtain signatures, scan document and upload back into the grant application.

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 Education Study Section is comprised of experts in the radiologic sciences with specific expertise and experience in education principles and the topics listed in the RFAs within a given year.

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**
Does the proposed education program address a key audience and an important aspect or important need? Is there convincing evidence in the application that the proposed program will significantly advance the stated goals of the program?
- **Innovation**
Taking into consideration the nature of the proposed research education program, does the applicant make a strong case for this program effectively reaching an audience in need of the program's offerings? Where appropriate, is the proposed program developing or utilizing innovative approaches and latest best practices to improve the knowledge and/or skills of the intended audience?
- **Approach**
Does the proposed program clearly state its goals and objectives, including the educational level of the audience to be reached, the content to be conveyed, and the intended outcome? Is there evidence that the program is based on a sound rationale, as well as sound educational concepts and adult learning principles? Is the plan for evaluation sound, and does it incorporate metric-based outcomes analyses likely to provide information on the achievement of learning objectives and overall effectiveness of the program? Is the project scalable/expandable? Is there a plan to monitor content, update and sustain the product? Are the timeline and budget realistic? Is there a proposed plan to incorporate the product into the 'RSNA Education System?'
- **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 the program's intended goal is accomplished? If the project is collaborative or multi-PI, do the investigators have complementary and integrated expertise; are their leadership approach, governance and organizational structure appropriate for the project?
- **Environment**
Will the scientific and educational environment of the proposed education program contribute to its intended goals? Is there a plan to take advantage of this environment to enhance the educational value of the program? Is there tangible evidence of institutional commitment? Is there evidence that the faculty have sufficient institutional support to create a sound educational environment for the participants? Where appropriate, is there evidence of collaboration and buy-in among participating programs, departments, and institutions?

Additional Review Criteria

- Protections for Human Subjects
- Vulnerable Populations (medical students, residents/fellows etc.)

INTERIM REVIEW (FOR MULTI-YEAR GRANTS)

Grant recipients are required to submit progress reports and project updates throughout the funding period. Initial progress reports must be submitted 10 months after the date of funding. For multi-year grants, subsequent progress reports must be submitted on a six-month basis, or as determined by the Education Grant Oversight Committee in order to remain eligible for future funding.

Progress reports must include documentation of the following:

- Provide a summary statement of the project status.
- Indicate any deviations you have made from the original educational plan and justify these changes.
- Restate the specific aims/goals of your education plan and indicate the progress made toward each aim/goal.
- Indicate progress made toward the milestones outlined in the original grant application.
- Indicate the expenditures you have made to date and how they relate to the project.
- Indicate any problems or delays that you have encountered.

The Education Grant Oversight Committee is responsible for reviewing funded education grant progress and milestones and developing recommendations for subsequent funding for the Foundation's multi-year education grants.