NC STATE Engineering

Dean's COE Applied AI Research Accelerator Award Program

Program Description and Objectives

The College of Engineering at NC State University is committed to advancing the field of applied AI through a research accelerator award program. The **Dean's COE Applied AI Research Accelerator Award Program** is designed to support cross-disciplinary teams of researchers in the COE to initiate and grow new projects, providing them with seed funds to foster novel research in applied AI. Requests for funding of up to $100,000 per team for a duration of one year will be considered for calendar year 2026. The program expects to fund 3-4 multi-investigator projects per year.

Submission Deadline: Proposals are due on or before **October 31, 2025**. Announcements of the three winning proposals will be made by **December 2025**.

The Dean's COE Applied AI Research Accelerator Award program will fund novel applied AI research projects at their initial stages. Projects must involve interdisciplinary/multidisciplinary teams to be considered. The primary objective is to foster the development of high-quality research in applied AI. The objectives of the program include the following: (i) promoting leadership and innovation in applied AI and interdisciplinary research among COE departments; (ii) stimulating early-stage research in applied AI and providing a pathway to external research funding; and (iii) driving research to address important societal and engineering world problems.

All faculty members, regardless of their tenure status, are eligible for the award, provided it aligns with the responsibilities and expectations of their position.

Eligibility

1. **Principal and Co-Principal Investigators**: Leads must be primary OR joint appointees to the COE. Their academic appointments must allow them to apply to major state, national and international agencies. There is no restriction on how many proposals a PI or Co-PI joins.
2. **Senior Personnel**: Senior personnel may be appointed to the COE or another unit of NC State. They are expected to participate substantively in the project. There is no restriction on the number of senior personnel in each research project.

3. **Collaborators**: Collaborators participate in some aspects of the project, but with less commitment of time and effort than co-applicants (e.g., they may provide occasional advice, partial editing of manuscripts, etc., without actively engaging in generating and analyzing data). They need not be appointed or cross-appointed to the COE. There is no restriction on the number of collaborators.

Required and Eligible Activities

In addition to supporting the work associated with the research proposals, other activities supported by the program include but are not limited to:

Required activities include:

1. Research
2. Preparation of grants for external funding

Other eligible activities include but are not limited to:

1. Workshops or symposia that showcase results obtained in the research project funded by the program.
2. Development of plans to promote industrial research collaborations

Research Proposal Content and Submission Instructions

The Dean's COE Applied AI Research Accelerator Award Program is intended to facilitate applied AI research projects that will form the basis of larger research grant applications to external peer review agencies and/or private companies. **Only research proposals that have not been previously funded by any type of funding source will be considered**.

The proposal should be submitted using this Google form by Oct. 31.

Proposals must include the following sections:

1. **Cover page** – The cover page includes the title of the proposed project, contact information of the submitting principal investigator (PI), list of co-PIs and other key personnel, total budget amount (requested amount and matching funds provided by the participating NC State departments and units within and external to COE), five (5) keywords, indication of the relevant program area, and a 250-word synopsis of the proposed project. Please use this **cover page template**.
2. **Project overview** – The overview should not exceed two (2) pages and should include the following items:

a. Interdisciplinary/Multidisciplinary description – A paragraph that describes the multidisciplinary nature of the proposed research. This award will only fund interdisciplinary/multidisciplinary projects that bring together one or more engineering domain areas and the AI discipline.
b. Statement of significance – A short paragraph (160 words approximately) that explains the significance and outcomes of the research work. Emphasis should be given to how the applied AI work pushes the envelope of technology and is transformative in nature, as well as how the work has high potential for significant future external support. It is required that the research team has specific plans to seek additional external funding applications at the end of the project. The expectation is to submit a proposal to external funding agencies within six (6) months of completion of the project.
c. Team description – The team description should discuss the role of each PI, co-PI and other key researchers mentioned in the proposal. This description should not only clearly define roles, but it should also establish how the team will combine disciplines to conduct the proposed research.

3. **Project description** – The project description must address how the proposed activities are consistent with the goals of the program. The description should include sufficient detail such that reviewers can evaluate the appropriateness and feasibility of the proposed plans, as well as the potential for external funding. The document must have at least 0.75 margins and 12-point font. Elements of the project description must include:
    a. Definition of the problem or challenge.
    b. Specific hypotheses to be tested, objectives or research questions.
    c. Technical approach related to each hypothesis, objective or research question.
    d. Innovation and novelty.
    e. Impact and applicability.
    f. Interdisciplinary/multidisciplinary research collaboration.
    g. Risks and mitigation strategy.
    h. Planning for external funding.

    When describing external funding possibilities, be as specific as possible, including agency names, programs, dates and potential amounts. Please keep in mind that not all reviewers will be experts in every proposed field of study, and thus project descriptions should be written for a broad audience. The length limit for the project description is two pages.

4. **Data availability** – The proposal should clearly identify the data availability, data quantity, data quality, data relevance and data diversity required to proceed with the project.
5. **Computing resources required** – The proposal should clearly identify the required computing resources to successfully proceed with the project.
6. **Budget with justification** – The budget and justification should include funds requested from the Applied AI Research Accelerator Award Program. Faculty members' salary charges are not permitted. Support of graduate students is strongly encouraged. Indirect costs are not applicable. Please use this **budget template**.
7. **References** – References associated with the proposal are expected on a separate page(s). No limit on the number of references.
8. **Appendices** – Potential appendices may include a bio-sketch and letters of support, if any. Two-page bio-sketches for the PI and co-PI are required.

Review Criteria

Proposals will be reviewed by a panel appointed by the COE Applied AI Committee. Three reviewers will evaluate each application based on the following criteria:

1. **Potential for future funding**: Potential for submission of a larger proposal and future funding is high and is expected to occur within six (6) months after project completion or earlier.
2. **Relevance**: It is expected that the proposal aligns with COE Applied AI goals and addresses real-world problems.
3. **Technical feasibility**: The technical approach discussed in the proposal must be sound and the proposed models and methods are feasible and well defined.
4. **Innovation and novelty**: The degree of innovation and novelty in the proposal will be evaluated to increase the potential for future external funding.
5. **Impact and applicability**: The proposal should have an important impact and a clear pathway to solve important real engineering societal problems.
6. **Interdisciplinary/multidisciplinary research collaboration**: The proposal should clearly identify opportunities for interdisciplinary and interdepartmental collaboration.
7. **Data availability**: Proposal should clearly identify viable data sources for the research project.

8. **Budget and resource requirements**: Proposal provides realistic budget and plan for securing resources.
9. **Team expertise and track record**: Faculty and team have relevant AI expertise and successful research history.
10. **Milestones and evaluation metrics**: Proposal has a clear timeline, deliverables and success criteria.
11. **Computing resources utilized**: Proposal clearly indicates availability of computer resources to be utilized.

Selection Process

Proposal reviews are managed by the College of Engineering Applied AI Committee and three reviewers will be selected for each application. To be ranked highly, proposals must use language that can be understood by people lacking expertise in the discipline and meet the abovementioned criteria.

Notification of Award

December 2025

Reporting Requirements

The expectation is to have two reporting milestones during the project. The first reporting milestone is an interim report at the midpoint in the project. The second reporting milestone is expected at the end of the project.

Interim Reporting Milestone

The interim report should be concise, focusing on progress, challenges and a revised plan. The interim report should focus on demonstrating the research team is on the right track and making good decisions. The expected length of the interim report is 5-10 pages (excluding any references and appendices). Suggested sections to be included in the interim report include:

1. Title Page
2. Executive Summary/Abstract (~ half page)
3. Introduction/Project Overview/Literature Review (~ 2 pages)
4. Methodology (Updates & Refinements) (~ 1 and a half pages)
5. Progress to Date & Preliminary Results (~ 2 pages)
6. Challenges & Obstacles (~ half page)
7. Revised Work Plan & Timeline (~ 1 page)
8. Conclusions & Next Steps (~ half page)

9. References
10. Appendices (Optional)

Final Report

The final report is a comprehensive document that details all aspects of the research, from problem definition to final conclusions and recommendations. The final report should be 20-30 pages (excluding appendices and references). Note that your internal report may be internally shared unless otherwise requested. Suggested sections in the report include:

1. Title Page
2. Abstract (200-300 words): A concise summary of the entire project: problem, methods, key results and conclusions.
3. Table of Contents, List of Figures, List of Tables
4. Introduction (~ 3 pages):
    a. Background and problem statement
    b. Motivation and significance of the research
    c. Research questions and objectives
    d. Overview of the report structure
5. Literature Review (~ 2 pages):
    a. Comprehensive review of existing work
    b. Identification of research gaps and how your project addresses them
    c. Theoretical framework or conceptual basis
6. Methodology (~ 5 pages):
    a. Detailed description of the dataset(s) used (sources, size, characteristics, preprocessing steps)
    b. Explanation of the AI models chosen, including architecture and justification
    c. Experimental setup, evaluation metrics, and hyperparameter tuning procedures
    d. Software and hardware used
7. Results (~ 10 pages):
    a. Clear and objective presentation of all findings
    b. Use of figures, tables, and graphs to illustrate results effectively
    c. Statistical analysis and comparisons
    d. No interpretation in this section – just the facts
8. Discussion (~ 2 pages):
    a. Interpretation of the results in relation to the research questions and objectives

    b. Comparison of findings with existing literature
    c. Discussion of implications, strengths, and limitations of the study
    d. Potential explanations for unexpected results
9. Conclusion & Future Work (~ 1 page):
    a. Summary of key findings and their contributions
    b. Reiteration of the main conclusions drawn from the research
    c. Recommendations for future funding and research directions
    d. Suggestions for practical applications or deployment
10. References: Comprehensive list of all cited sources (following a consistent citation style)
11. Appendices:
    a. Detailed dataset descriptions
    b. Additional experimental results, visualizations or sensitivity analyses
    c. Raw data samples (if necessary for reproducibility)
    d. Financial reporting (budget, expenditure reports, final financial statements)

Program Contacts

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