Artificial Intelligence Research Catalyst Fund

Summary

Title: UF Research, Artificial Intelligence Research Catalyst Fund

Sponsor: UF Research

Due Date: September 21, 2020

Synopsis: This program will provide catalyst funds for artificial intelligence (AI) research projects using the University of Florida's existing research computing GPU infrastructure or the soon to be installed NVIDIA instrumentation. The program is intended to support projects that can be quickly implemented and conducted, from start to finish, in a 6-12 month time period.

Award Amount: $50,000

Program Contacts:

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Description

Artificial Intelligence (AI) is the next horizon in computational-enabled science and technologies. Efforts to develop and apply robust AI are ongoing across almost all fields of study. Among other benefits, AI promises to revolutionize healthcare, security, transportation, education, manufacturing and the overall human experience. Algorithmic advances in machine learning (ML) along with increased computing power and the advent of "big data" have set AI up to be one of the most powerful technological forces of the 21st century.

The University of Florida is launching a major initiative to engage intellectual interest in AI with the objective of becoming a national leader in AI research and education. As part of this initiative, the AI research catalyst fund is intended to jump start research and collaboration in AI and promote the use of UF's new computing infrastructure. Therefore, an eligible proposal must require the use of GPU technology on the HiPerGator research computing system with an eye towards implementation of new capabilities soon to be installed. All projects should be **completed** within 12 months from the project start date.

What UF Research will Fund

We anticipate funding projects that strive to develop new machine-learning and deep-learning algorithms; and projects that use AI/ML to develop ways of analyzing heterogeneous data or

novel methods for analyzing existing datasets. We are also interested in proposals that introduce AI and ML to investigators with little experience in AI/ML. Proposals that bring together multi-disciplinary teams and develop future collaborations in AI/ML research will also be of high interest. Furthermore, pilot projects that have an identified potential to lead toward extramural funding are encouraged. Investigators should consider how their proposed projects would fit within a specific funding agency's priorities (e.g., NSF's AI themes; Explicit AI interests for NIH, DOD, and USDA). Projects addressing foundational issues in AI, its applications to science and engineering problems, and its impacts to society are within the scope of this RFA.

Award Information

Number of awards: 16 maximum

Total funding: $800,000

Maximum amount awarded: $50,000

Eligibility

Who may submit a proposal (Principal Investigator)?

Proposals may be submitted by any UF faculty member (PI) eligible to submit a proposal to an external funding agency (see Policy on Eligibility to Submit a Proposal for External Funding: https://research.ufl.edu/dsp/proposals/eligibility-to-submit-a-proposal-forexternal-funding.html). Faculty hired in 2017 or later are especially encouraged to apply, provided their project meets the program requirements.

Who may serve as a Co-Investigator?

Courtesy, Adjunct, Visiting and OPS faculty; Assistant In, Associate In, Senior Associate In; Research Associates; and Postdoctoral Associates are not eligible to be PIs. However, they may participate as co-PIs or co-Investigators.

Limits on number of proposals: 1 as lead PI, and 1 as co-PI

Budgetary Information

Allowable costs include:

- Funding for graduate students or post-docs
- Purchase/fees associated with access to datasets
- Materials and supplies necessary for preliminary activities for acquisition of preliminary data

The following costs are not allowable:

- Faculty salaries
- Subcontracts to non-UF investigators
- Support for organizational activities required to develop and submit a large, multi-investigator proposal
- Publication costs
- Travel to technical meetings and/or external agencies.
- Equipment that is necessary to compete for the targeted sponsored program

Additional information:

There are no indirect costs associated with these awards.

Desired faculty release time will need to be provided by the unit.

Within the scope of the approved projects, access to the research computing infrastructure, including runtime on GPUs, will be provided at no additional costs.

Proposal and Submission instructions

Applicants should submit a single-page "quad chart" briefly overviewing their project including the research problem, team, and project milestones. Quad charts are a single-page four quadrant table that provide an overview of the proposal's major points. Quad charts aid reviewers in getting a good overall view of the proposed project and demonstrate cohesion between the various elements of the proposal.

Quad Chart Guidelines- 1 page

Project Title; Area of Interest

Problem Statement • Overview of research problem and question(s) • Specific Aims or objectives • Significance of research including potential short- and long-term impact	**Graphic** A picture, diagram, flow chart, data figure or other visual that quickly illustrates the concept behind the research **Team members** (include in this list the persons most critical for the success of the project)
Technical Process Description • Overview of actual research process including project milestones • Describe any required preparatory work • List senior/key personnel and describe their role in the process	**Sustainability of research program** • Sponsors/Programs targeted for extramural funding • Target dates for submission of proposals to sponsors

Project Description

Problem Statement (500 words)

Describe the specific aims and objectives of the research, background and significance of the research problem, the innovation and potential short- and long-term impact of the

research. Describe any existing preliminary data (if applicable) in the context of the approach/methodology to be used.

Technical Process Description (750 words)

Provide a detailed explanation of the methodology/scientific approach/technology you feel is best suited to address the research problem you identified. Include a description of multi-disciplinary aspects of the project if applicable.

What makes this the most valid approach using the new computing capacity at UF at this time? Are there any other possible alternate approaches? Why will the alternate approaches not help solve the same technical challenge?

Provide a description of the why GPU technology is needed for this effort. What is the scale/size of the data? What are the computational challenges? How are the computational challenges well-suited for a GPU system?

Team qualifications (200 words)

Explain the role of each of the participating faculty, and why they are the best qualified to lead/accomplish the team goals. Why does this problem need a team approach?

Budget

- A budget and justification of expenses.
- Budgets should <u>not</u> exceed $50,000 for the entire project period.
- A brief justification of the need for support from AI Research Catalyst Fund is required.
- The percent effort of each participating faculty member must be included in the budget justification.
- AI research awards are to be expended on campus.
- There are no indirect costs associated with AI research awards.
- List the computational resources needed on HiPerGator for the project: number of GPU cards (NGU), number of CPU cores (NCU), and storage.
- Budgets may be for a period of up to 12 months.
- A specific start date should be given (the earliest start date is **October 15, 2020**. If no start date is specified, UF Research will assume a start date of **Nov 2, 2020.**

Plans for continued support (200 words)

Plans to obtain continuing external support for the project. Proposals must specifically list the sources (sponsors and/or relevant programs) of external support that will be pursued following the rapid funding, and how further development of the project is to be sustained beyond these catalyst funds.

Biographical Sketches for PI and Key Personnel

BioSketches can follow NSF or NIH guidelines (2 pages maximum).

Current and pending support (2 pages maximum).

References

1 Page (applicants may choose a formatting style, but it should be applied consistently throughout).

Submission Instructions:

Proposals must be submitted to UF Research by the lead PI through the InfoReady Portal https://ufresearch.infoready4.com/#competitionDetail/1820683 and UFIRST on or before **September 21, 2020**. The title of the proposal must start with: OR-DRD-AI2020: [Title]

Documents should contain all sections described above, include a word count for each word-limited section, and be uploaded as a single pdf document.

Proposals must be single spaced; font size no smaller than 11 point; Times New Roman, Calibri, or Arial font; 0.5 inch margins all around.

Proposal Review Process

Proposals will be reviewed by ad-hoc faculty review panels with expertise in AI**.** The faculty review panels will make recommendations to the Vice President for Research who will make final funding decisions.

Review Criteria:

1. Significance: Does the proposed project have the potential to spur sustainable AI-based research programs at UF? Is the project timely? Is this appropriate for GPU computing architecture? What is the potential to produce and/or sustain long term collaboration among the participants?
2. Technical Approach/Research Theme: Does this proposed project support multidisciplinary collaboration? Is the research problem well-defined with answerable research questions? Is the research close to being started? Are the collaborations already established?
3. Suitability for Catalyst Funding: Are the aims listed the most appropriate to address using this rapid-response mechanism? Are the milestones appropriate and achievable in the time proposed? How will failures and setbacks be addressed?
4. Research Results: Is this collaboration creating new AI-research based multidisciplinary teams? Will the completion of this project position the team to publish a manuscript or conference proceeding? Does this project show significant promise in leading to future extramural support?
5. Qualifications of the Team: Does this team have a prior history of garnering extramural support as a collaborative in AI research? If the team already has extramural support, why is

this funding needed? Is there cohesiveness among the participants? Do the faculty members involved have a sufficient level of commitment to the project?

Rubric:

Each review criterion is 20 points. Please use the "COMMENTS" section below to enter weaknesses and strengths for each proposal (at least a paragraph).

Project Title	PI	Significance/ Contribution to AI research at UF	Technical Approach/ Research Theme	Suitability for catalyst funding/ Milestones	Research Results	Team Qualifications	Total Points

Notification of Award:

On or before Oct 31, 2020

Reporting Requirements

The Principal Investigator and the leadership team will provide 2 reports with details on key performance indicators and milestones achieved in accordance with the proposed timeline to the Vice President for Research. One report is to be provided within two months of the end of the project. A final report will be required one year after the end of the project.

Contacts

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