

To: CCoM Faculty and Research Staff

The Carver College of Medicine (CCoM) is seeking proposals for interdisciplinary research projects that require Artificial Intelligence/Machine Learning (AI/ML) expertise and dedicated AI/ML computational resources. The funds will not be provided directly to the investigator. Instead, they will be provided to the Iowa Initiative for Artificial intelligence (IIAI, www.iiai.uiowa.edu) to support the selected research projects.

The potential use of AI/ML in healthcare research includes data driven investigations. This IIAI—CCoM call for proposals is designed to facilitate development of new and/or enhance existing interdisciplinary collaborations that can benefit from novel aspects enabled by incorporating AI and machine learning. Selected projects may be new projects or computational expansions of existing funded research projects.

Responsive proposals will:

- address important questions in healthcare research using data-driven approaches
- be based on access to sufficient data to answer (or start answering) such questions
- seek machine learning expertise as an enabling strategy
- describe the predictors or input variables (X) and the response or outcome variables (Y), for example:
 - "We aim to use metabolomics data (X) to predict mitochondrial function and its relationship to diabetes (Y)."
 - "We aim to use image-based lung biopsy data (X) to determine sample malignancy status (Y)"
 - "We aim to use radiation dose maps and tissue/organ characterization (X) to predict tissue/organ-specific tissue damage (Y)."
 - "We aim to combine genetic sequencing, curated variant classifications and structural biology data (X) to classify genetic variants associated with hearing loss (Y)."
 - etc.
- be willing to invest effort in building a new interdisciplinary team

Currently active interdisciplinary research projects enabled by IIAI show the breadth of research interests and can be seen at: <https://www.iiai.uiowa.edu/content/calls-proposals-funded-projects>, <https://magazine.foriowa.org/story.php?ed=true&storyid=2042> .

Research projects that are not currently supported by external peer-reviewed funding should include realistic plans for preparing and submitting a large (R01 or similar sized NIH, NSF, AHA, ACS, Gates Foundation, etc.) extramurally-funded healthcare-oriented interdisciplinary research proposal within 12 months after receiving pilot funding.

Awards will amount to the equivalent of \$15,000 in support from the IIAI. This corresponds to about 10 weeks of expert support at 20% effort and the requisite computational resources to achieve results adequate as preliminary data in a grant proposal. It will also include an expert write-up of the needed methodology for a research proposal. The IIAI will consult with awardees to plan for longer-term collaborations that will ensure the sustainability of the project. It is anticipated that up to 4 awards will be made during this round.

Applicants are required to review concepts with M. Sonka (milan-sonka@uiowa.edu), Director of IIAI, who will make the recommendation for a full submission. An internal peer-review committee will be identified to review proposals and make recommendations concerning funding to the CCoM leadership.

The submission is a 3-step process of

- a) submitting a statement of intent briefly outlining items 1, 3, 5 of the Proposal (below),
- b) discussing the project with IIAI experts, and
- c) submitting a brief 2-page proposal.

See the timeline below for deadlines and additional details.

Proposal structure (limited to 2 pages + additional page(s) of literature):

1. Project Title
2. Investigators
3. Specific aims + Statement of healthcare relevance; should include a brief, conceptual but sufficiently detailed description of the predictor or input variables (X) and the response or outcome variables (Y)
4. Current support for the project (if any)
5. Preliminary data (if any), description of available data to facilitate the proposed research, incl. data sizes
6. Specifics on how involvement of the IIAI expertise/use of computational resources will advance the research
7. Plans to receive extramural funding

Timeline:

- 5/15/2021
 - Email a brief statement of intent to M. Sonka (milan-sonka@uiowa.edu)
 - This email should include a draft document briefly outlining items 1, 3, 5 of the Proposal
 - 5/16 – 5/30/2021
 - Scheduled Zoom meetings of each team with IIAI to discuss the proposed research
 - 6/1/2021 Proposal submission
 - 6/2/2021 – 6/15/2021 Internal review of proposals
 - 6/20/2021 Selection of projects to be funded
 - 6/21/2021 Announcement of up to 4 projects to be funded
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