



Request for Pilot Research Ideas Involving Artificial Intelligence and Machine Learning: 2022

The College of Public Health Injury Prevention Research Center is seeking proposals for research projects that require Artificial Intelligence/Machine Learning (AI/ML) expertise and dedicated AI/ML computational resources. The funds will be allocated to both the investigator and Iowa Initiative for Artificial intelligence (IIAI, www.ii.ai.uiowa.edu) to directly support the selected pilot research projects. It is expected that two-thirds of the funding (or, \$15,000) will be allocated to the IIAI.

The potential use of AI/ML in the IPRC research area includes data driven investigations. This IPRC 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. These projects will be relatively small scale, proof-of-principle, studies to generate preliminary results. These pilot results would ideally be used to apply for external funding for a subsequent larger project.

Responsive proposals will:

- address important questions in IPRC 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 data about traffic density, type of the road/intersection, signage, and age of the drivers (X) to predict traffic scenarios likely leading to traffic accidents (Y)."
 - or "We aim to use experience of the workers, data about number of hours worked during the current day, current week, and their level of fatigue, level of training/experience, type of the job, ... (X) to predict the likelihood and/or type of work-related injuries (Y)."
 - or "We will use data from the traumatic brain injury registry database together with relevant data from Epic (X) to predict a risk of developing sepsis and its severity (Y)."
- be willing to invest effort in building a new interdisciplinary team

Each award will be \$22,500, of which \$15,000 will support the IIAI. This corresponds to about 10 weeks of expert support at 25% 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 2 Faculty or Research Scientist Awards per year will be made during this round. One-third of these funds will go to the principal investigator, and two-thirds will go to the Iowa Initiative for Artificial Intelligence (IIAI) to directly support the time, effort, and computing resources necessary for the research project.

Applicants are required to review concepts with M. Sonka (milan-sonka@uiowa.edu), Director of IIAI, who will make the recommendation for a full 2-page proposal submission. An internal peer-review committee will be identified to review proposals and make recommendations concerning funding to the IPRC leadership.

The proposal submission has 3 phases (see the timeline below): (1) emailing a statement of intent, (2) discussing your plans with IIAI, and (3) submitting a brief proposal (maximum 2 pages) and budget and budget justification addressing the following:

1. Project Title
2. Investigators
3. Specific Aims and Statement of IPRC Relevance; should include a brief, conceptual 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
6. Description of needs to obtain/use IIAI services (expertise, computational resources)
7. Specifics on how involvement of the IIAI expertise/use of computational resources will advance the research
8. Plans to receive extramural funding

Timeline:

- 4/25/2022
 - Email a brief statement of intent to Milan Sonka (milan-sonka@uiowa.edu) and Carri Casteel (carri-casteel@uiowa.edu)
 - This email should include a draft document briefly outlining items 1, 3, 5 of the proposal above
 - 4/26/2022 – 5/15/2022
 - Scheduled meetings of each team with IIAI to discuss the proposed research
 - 5/30/2022
 - Proposal submission (2 pages max.)
 - 6/1– 6/15/2022
 - Internal review of proposals, recommendation to IPRC leadership
 - 6/20/2022
 - Selection of projects to be funded by IPRC
 - 6/21/2022
 - Announcement of up to 2 faculty projects to be funded
 - 7/1/2022
 - Funding starts
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