Call for Challenge Problems Requiring AI/OR Collaboration

The CCC, in collaboration with INFORMS and ACM SIGAI, will be hosting the final workshop of a three-part series titled, *Artificial Intelligence (AI)/Operations Research (OR)*, in late February or early March 2024, to set a course for fundamental research that needs the partnership of both disciplines. Organized by Yu Ding (Georgia Institute of Technology), Pascal Van Hentenryck (Georgia Institute of Technology), Sven Koenig (University of Southern California), Ramayya Krishnan (Carnegie Mellon University), Radhika Kulkarni (INFORMS), and Phebe Vayanos (University of Southern California), the workshop will focus on drafting a strategic plan for increasing the AI/OR partnership and on outlining real-world opportunities for collaboration, based on discussions from the previous two workshops.

For this workshop, we are requesting proposals from the AI and OR communities for compelling and inspiring grand challenge problems of a theoretical or applied nature that

1. require the collaboration of AI and OR researchers and
2. will result in basic research on the integration of AI and OR techniques that
3. align with societal needs and national priorities with potential for real-world impact.

We would like proposals to describe a challenge problem that will result in the integration of AI and OR methods and articulate the AI and OR methods needed, dataset availability (if applicable), method innovation, evaluation criteria, path to applications, and the potential to result in impact on societal needs and national priorities. Some questions to consider are:

A. What are challenges that you believe will be faced to tackle this problem, and what are the mechanisms needed to address them?
B. How can policies/mechanisms incentivize collaborations between the two communities?
C. Why do you think the two communities need to collaborate to address this challenge?

Challenge problems can be submitted using this form. Submissions can be written in paragraph or bullet point style formats. Your submission should convincingly explain why it satisfies points 1, 2, and 3 above and how it addresses questions A, B, and C. Some high level ideas of challenges include leveraging optimization to mitigate bias in large language models, or using robust optimization to enhance privacy of generative AI. The deadline for submission is **September 15, 2023**.

Selected submitters will be invited to participate in the third workshop to help shape the discussion around collaboration between AI and OR communities and researchers and to help break barriers in such collaborations.

At the final workshop, in addition to laying out challenge problems, we will also outline additional strategies that will help both communities to impact national priorities, such as creating a joint summer school where AI and OR experts provide multidisciplinary training in AI and OR to Ph.D. students, and other ideas from the community. The objective for the third workshop is to write a final report that lays out a blueprint for activities that increase the collaboration between the AI and OR communities.

To learn more about the AI/OR Workshop series, please visit the first and second workshop event pages, and read the Workshop 1 Report Out and the Workshop 2 Report Out.

Please remember to submit your ideas here by September 15, 2023.