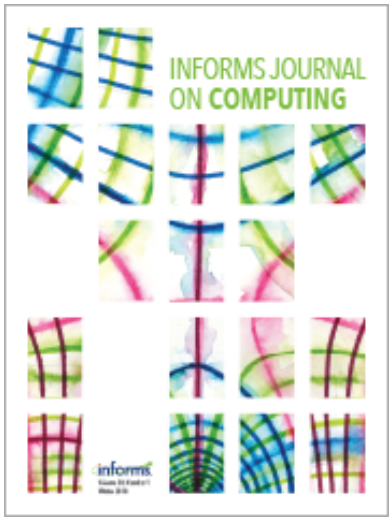

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Special Issue of INFORMS Journal on Computing—Scalable Reinforcement Learning Algorithms

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Call for Papers

Special Issue of *INFORMS Journal on Computing*—Scalable Reinforcement Learning Algorithms

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Introduction

Reinforcement learning (RL) is currently experiencing a burgeoning growth in terms of both methodology and applications. Although rooted in specialized algorithms developed in the computer science community, RL has evolved into a field that deals with a broad set of methods for the approximate solution of intractable Markov decision processes, the foundational models of sequential decision making under uncertainty in operations research. Recently, RL has experienced spectacular success in board games and robotics. For example, the Alpha Go RL algorithm was able to defeat a human professional player in the game of Go, only to be later itself beaten by another RL algorithm, AlphaGo Zero. Despite these specific breakthroughs, the development and deployment of RL algorithms that scale gracefully in the dimensionality of problems beyond these domains, in particular business, industrial, governmental, and societal settings, remains an open and active area of research and applications.

Special Issue Scope

The *INFORMS Journal of Computing* has been publishing RL research for several years across its many areas. To foster its commitment to RL, the Applications in Biology, Medicine, & Healthcare (J. Paul Brooks), Software Tools (Ted Ralphs), and Stochastic Models & Reinforcement Learning (Nicola Secomandi) areas of the journal invite authors to submit manuscripts that substantially advance the state of the art in methodology, applications, or software implementation as they pertain to scalable RL algorithms, that is, methods that scale nicely in problem size or at least have reasonable prospects to do so in the near future with projected advances in computing power and technologies.

Submitted manuscripts should fall under the purview of at least one of these areas, the descriptions of which, including contextual domains of interest, are available at <https://pubsonline.informs.org/page/ijoc/editorial-statement>.

Submissions should follow the standard requirements of the *INFORMS Journal on Computing* articles available at <https://pubsonline.informs.org/page/ijoc/submission-guidelines>.

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Timeline

The editors require potential authors to prepare a short proposal before making a full submission of a paper. Please note the following dates:

- April 30, 2022: Letter of interest due to the editors (via email) with an abstract including which of the three journal areas would be the most appropriate for the paper (early letters are encouraged; submit the letter to the editor of the area closest to the paper's subject matter, copying all the other editors).
- July 31, 2022: Deadline for first round of submissions.
- November 30, 2022: First round of reviews completed; decisions (and requests for revision if appropriate) delivered to authors.
- March 31, 2023: Revisions due after first-round decisions.
- June 30, 2023: Second round of reviews delivered to authors.
- September 30, 2023: Final versions of accepted papers must be submitted.

Submission Instructions

Papers must be submitted online at <https://mc.manuscriptcentral.com/ijoc>.

When submitting a paper, please note the following:

Under "Step 1: Type, Title, & Abstract," select "Special Issue" for "Type." For "Select topic area of submission," please select the area closest to the paper's subject matter: Applications in Biology, Medicine, & Healthcare (J. Paul Brooks), Software Tools (Ted Ralphs), or Stochastic Models & Reinforcement Learning (Nicola Secomandi).

Under "Step 5: Details & Comments," in your cover letter, please clearly state that this paper is for the "Special Issue on Scalable Reinforcement Learning Algorithms."