



INFORMS Journal on Computing

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

Special Issue of INFORMS Journal on Computing— Quantum Computing and Operations Research

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To cite this article:

Carleton Coffrin, Elisabeth Lobe, Giacomo Nannicini, Ojas Parekh (2023) Special Issue of INFORMS Journal on Computing—Quantum Computing and Operations Research. INFORMS Journal on Computing 35(3):521-522. <https://doi.org/10.1287/ijoc.2023.cfp.v35.n3>

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Call for Papers

Special Issue of *INFORMS Journal on Computing*—Quantum Computing and Operations Research

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Published Online in Articles in Advance:

May 15, 2023

<https://doi.org/10.1287/ijoc.2023.cfp.v35.n3>

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Introduction

Quantum computers offer an alternative way to approach computational problems, and it is widely believed that they can solve certain tasks significantly faster or with greater accuracy than any classical (i.e., nonquantum) computer. The impact of quantum computers on operations research, and vice versa, has thus far been limited, but this is expected to change. Indeed, the construction of more refined and scalable quantum hardware and software calls for the solution of a diverse range of problems that operations researchers are in prime position to address; examples include hardware design, hardware control, compiling, scheduling, and classical simulation of quantum devices. Furthermore, because of tremendous progress in hardware development and in the construction of basic algorithmic primitives, the last few years have shown significant growth in the volume of research dedicated to the application of quantum computers for the solution of operations research problems. This includes, but is not limited to, optimization, simulation, and learning.

Special Issue Scope

The *INFORMS Journal of Computing* wishes to promote high-quality research at the intersection of quantum computing and operations research. To foster the growth of the community and give visibility to top-tier work in this area, the *Journal* is devoting a special issue to this topic, and it invites authors to submit manuscripts that substantially advance the state of the art in methodology, theory, algorithms, applications, or software implementation as they pertain to all areas at the intersection of quantum computing and operations research. This includes, but is not limited to, novel results regarding the development and analysis of quantum or quantum-inspired classical algorithms for solving problems in operations research or based on the application of operations research techniques, the development of solution methodologies for problems that arise in the design and operation of quantum computers, and insightful empirical testing of the aforementioned types of algorithms.

The main goal of this special issue is to give a platform to novel research in this emerging area. Survey and tutorial papers are included in this call; however, any survey or tutorial paper will have to maintain a very high standard of novelty and contribution with respect to existing surveys and tutorials in the open literature. We strongly encourage interested authors to contact one of the guest editors for this issue to discuss whether their work fits the scope of this special issue (see Timeline).

The editorial statement of the journal is 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 ask potential authors to prepare a short proposal, that is, a letter of intent, before making a full submission of a paper. Please note the following dates:

- September 30, 2023: Letter of interest sent to the editors (via email), with an abstract for the proposed contribution. (This step is not mandatory but strongly preferred to ensure proper review. Early letters are encouraged; submit the letter copying all guest editors).
- January 15, 2024: Deadline for first round of submissions.
- April 15, 2024: First round of reviews completed; decisions (and requests for revision, if appropriate) delivered to authors.
- June 15, 2024: Revisions due after first round decisions.
- August 15, 2024: Second round of reviews delivered to authors.
- August 30, 2024: 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,”
- select “Special Issue” under “Select topic area of submission,”
- and answer “Quantum Computing” for “If this paper is for a special issue, which one is it for?”.