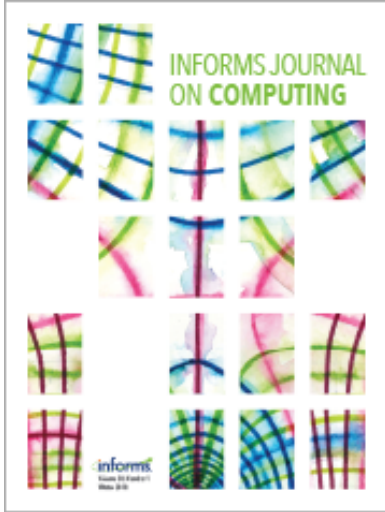




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Introduction to the Special Issue on Quantum Computing and Operations Research

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Introduction to the Special Issue on Quantum Computing and Operations Research

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This issue of the *INFORMS Journal on Computing* highlights work at the intersection of quantum computing and operations research through nine high-quality articles.

The United Nations has declared 2025 the International Year of Quantum Science and Technology, and the *INFORMS Journal on Computing* starts the year by showcasing some of the ways in which the INFORMS community can contribute to quantum computing efforts, and how quantum computing can impact the INFORMS community.

The articles in the special issue explore such possibilities: novel optimization algorithms for the synthesis and compilation of quantum circuits; interior point methods for problems over the quantum relative entropy cone; optimal control of quantum systems; improved performance of variational quantum algorithms via better classical optimization; insights into quantum optimization algorithms leveraging instance space analysis; quantum-inspired algorithms for responder network design; and a software package for certain types of nonlinear optimization on quantum computers. The breadth of the research is impressive and is a testament to the possibilities of the field. All articles underwent the usual review process for the *INFORMS Journal on Computing*.

The special issue was first suggested by the INFORMS Computing Society working group on Quantum Computing in 2021; however, the working group felt that waiting a few more years would enable reaching a critical mass of researchers. More recently, the proposal was revived and came to fruition under the initiative of the Editor-in-Chief Alice Smith, who supported the editors of this special issue through the entire process. The editors are thankful to her and to the entire staff of the *INFORMS Journal on Computing* for their support, to the authors who submitted their work for consideration, and to the numerous anonymous reviewers who helped us evaluate the quality and fit of the contributions.

We conclude this preface with an auspice that more authors will consider publishing their work at the intersection of quantum computing and operations research on INFORMS journals; in particular, the *INFORMS Journal on Computing* could be a natural publication outlet for many such works.