



## Algorithms for Optimization 2022

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### Message from the Guest Editors

In the real world, symmetry and asymmetry are present in various problems. Some of can be formulated as different types of optimization problems. Optimization methods are one of the key techniques in the field of artificial intelligence. In recent years, many new optimization techniques have emerged and developed, which have greatly promoted the development of artificial intelligence. Evolutionary computation, as a bionic optimization technique inspired by the co-evolution of individuals in biological populations, achieves the solution of complex problems by simulating the working patterns of biological individuals. Compared with traditional optimization methods, it has the advantages of not relying on the exact mathematical model of the problem to be solved, robustness, easy parallelism, etc. It has become a popular and promising research direction for solving complex optimization problems such as nonconvex optimization and combinatorial optimization in the field of artificial intelligence, and has important applications in many fields, such as intelligent manufacturing and smart logistics, and smart grids.





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## Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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