Journal of Mathematics

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Special Issue on

Real World Optimization Using Evolutionary and Swarm Algorithms

CALL FOR PAPERS

Solving real world optimization problems is central to most streams of science and engineering. Several traditional optimization algorithms have been used over the years, but recent years have seen increasing interest in evolutionary and swarm algorithms that can be applied successfully to high-dimensional, constrained, multiobjective, and multimodal discrete and continuous optimization problems. Examples of such optimization applications include energy systems, computational materials synthesis, manufacturing processes and systems, protein folding, weather prediction, autonomous robotics, online control, structural design, molecular dynamics, rapid prototyping, drug design, design of micro-electro-mechanical systems, financial markets, vehicle routing, and scheduling. In this special issue, we invite contributors to submit original and high quality articles proposing new algorithms and solution strategies for solving challenging real world optimization problems effectively using algorithms including genetic algorithms, evolution strategies, differential evolution, particle swarms, ant systems/colonies, memetic algorithms, and other such approaches. Papers may also describe the application of new bio-inspired and derivative-free methods, as well as hybrid algorithms that combine evolutionary or swarm algorithms with traditional optimization techniques such as sequential quadratic programming and augmented Lagrangian methods. Of special interest are custom-designed algorithms, along with their properties and features, which exhibit substantial advantages over standard or routine optimization procedures on practical problems. Contributions are encouraged to demonstrate the advantages of their approaches through theoretical analyses.

Potential topics include but are not limited to the following:

- Nature-inspired algorithms
- Population-based methods
- Swarm intelligence
- Ant colony optimization
- Hybrid-optimization algorithms
- Multiobjective optimization
- Dynamic optimization
- Combinatorial optimization
- Global optimization

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jmath/operations.research/rwos/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Guest Editor
Nikhil Padhye, Stanford University, Stanford, USA
npdhye@stanford.edu

Guest Editors
Chilukuri Mohan, Syracuse University, Syracuse, USA
ckmohan@syr.edu

Kishan Mehrotra, Syracuse University, Syracuse, USA
mehrotra@syr.edu

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