Peak and Bad-Case Performance of Swarm and Evolutionary Optimization Algorithms

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Message from the Guest Editors

Dear Colleagues,

This Special Issue focuses on swarm intelligence and evolutionary computation algorithms in general. Being stochastic, these algorithms generate better or worse solutions by chance. In scientific research, the average performance based on the arithmetic mean is reported and analyzed. In practice, these algorithms can and should be executed multiple times and the probability of obtaining peak performance solutions then increases arbitrarily to high certainty. Due to the parallelization trends of computing elements in recent decades, this has become particularly practical. On the other hand, some application scenarios might require very high probabilities of obtaining a solution of at least some minimally acceptable quality.

Experimental studies of peak or bad-case performance of algorithms that previously showed state-of-the-art average performance are welcome. Large comparisons of peak performance or bad-case performance of swarm intelligence and evolutionary computation algorithms are welcome, and theoretical findings concerning peak performance or bad-case performance are also welcome.

Special Issue

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Message from the Editor-in-Chief

Algorithms are the very core of Computer Science. The whole area has been considered from quite different perspectives, having led to the development of many sub-communities: Complexity theory (limitations), approximation or parameterized algorithms (types of problems), geometric algorithms (subject area), metaheuristics, algorithm engineering, medical imaging (applications), indicates the range of perspectives. Our journal welcomes submissions written from any of these perspectives, so that it may become a forum for exchange of ideas between the corresponding scientific subcommunities.

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