Swarm intelligence is the study of computational systems that involves the collective cooperation of multiple agents that operate in a decentralized, self-organized, and distributed form. For instance, several optimization techniques follow this behavior, which via intelligent agents guided by high-level strategies and local improvement procedures are able to efficiently solve NP-hard and NP-complete problems. During the last ten years, swarm intelligence approaches such as ant colony optimization, particle swarm optimization, artificial bee colony, electromagnetism-like algorithm, cuckoo search, bat algorithm, firefly optimization, and black hole, have successfully been used to solve various well-known academic and real-world engineering problems in several application domains. Some examples can be mentioned such as resource planning, telecommunications, financial analysis, scheduling, space planning, energy distribution, molecular engineering, logistics, pattern classification, and manufacturing.

For this special issue we received 73 submissions from 10 countries. An extensive review process involved over 140 reviewers, who evaluated and reported on the manuscripts. All papers were assigned to at least two experts for review. Overall, 16 original, high-quality articles were accepted for publication. The main topics involved in those papers, as well as the swarm intelligence techniques employed to tackle the associated optimization problems, are given in the following: bacterial colony algorithms for association rule mining, parameter identification using particle swarm optimization, differential evolution for large-scale dynamic economic dispatch, L1-norm minimization method for network reconstruction, locust search algorithms for solving optimization problems, black hole optimization for solving set covering problems, differential evolution for human resources allocation, particle swarm optimization and genetic algorithms for designing off-grid electrification projects, grey wolf optimization for image segmentation, particle swarm optimization for nonlinear Boolean functions, interference array optimization via particle swarm optimization, particle swarm optimization for accurate lithium-ion battery models, fruit fly optimization for heat exchange fouling ultrasonic detection, particle swarm and firefly optimization for support vector regression methods, energy cost optimization for unmanned aerial vehicle communication networks, and flower pollination algorithm for global optimization.

Conflicts of Interest

The editors declare that they have no conflicts of interest regarding the publication of this special issue.

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