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Special Session on Adaptive Swarm Intelligence Algorithms

Session Overview

Swarm Intelligence (SI) algorithms consist of a population of semi-autonomous agents coupled with a social interaction mechanism. Despite the characteristically-simple rules governing each individual agent, an intelligent collective behaviour emerges as a result of the social interactions among agents. Often, the emergence of such collective intelligence is contingent upon employing an appropriate configuration of the algorithm. However, the optimal configuration(s) for the algorithms are typically problem dependent and may change throughout the search process. Thus, determining an appropriate configuration *a priori* may lead to sub-optimal performance. To address the shortcomings of *a priori* configuration, adaptive SI algorithms aim to modify their configurations during the search process based on various observations.

Scope and Topics

The purpose of this special session is to provide a forum for researchers to disseminate their original research in the field of adaptive swarm intelligence algorithms. Topics of interest are, but not limited to, the following:

- Adaptive variants of swarm intelligence algorithms, such as:
    - Particle swarm optimization
    - Ant colony optimization
    - Swarm robotics
    - Bee algorithms
    - Firefly algorithms
    - Bat algorithms
    - Bacterial foraging optimization
    - Stochastic diffusion search
- New self-adaptive schemes
- Empirical analysis of adaptive algorithms
- Analysis of convergence behaviour
- Sensitivity analysis of control parameters
- Adaptive algorithms in dynamic environments
- Adaptive multi-objective algorithms
- Automated cooperation/competition mechanisms
- Algorithmic state categorization
- Automated population sizing and structuring
- Adaptive inter-agent communication mechanisms

Session Organizers

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Important Dates

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Further Information

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