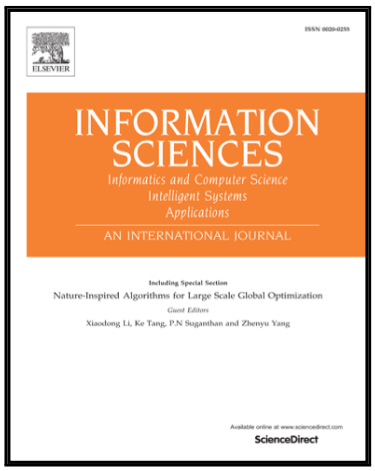


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PII: S0020-0255(17)30515-7
DOI: 10.1016/j.ins.2017.02.027
Reference: INS 12750

To appear in: *Information Sciences*

Received date: 17 February 2016
Revised date: 23 December 2016
Accepted date: 13 February 2017

Please cite this article as: Prativa Agarwalla, Sumitra Mukhopadhyay, Efficient Player Selection Strategy Based Diversified Particle Swarm Optimization Algorithm for Global Optimization, *Information Sciences* (2017), doi: 10.1016/j.ins.2017.02.027

# Efficient Player Selection Strategy Based Diversified Particle Swarm Optimization Algorithm for Global Optimization

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**Abstract**

Sport is one of the activities of human being where cooperative, competitive, self-learning and interactive environment helps in the overall improvement of the performance. These learning processes are very effective to regulate the players in a good direction as well as to enhance their capability of exploring the new techniques. Particle Swarm Optimization (PSO) is a popular stochastic optimization algorithm, used for solving real-world engineering problems. However, it usually suffers from local confinement and easily loses its diversity. In this paper, we have integrated the properties of sports with PSO algorithm and proposed an efficient player selection strategy based diversified PSO (EPS-dPSO), which improves the fitness and robustness of the technique without compromising the computational complexity of the algorithm. The properties of player selection is adopted to enhance the diversity within the search phase as well as to incorporate intense searching of the space. We have comprehensively evaluated the performance of proposed EPS-dPSO by applying it on standard benchmark problems. Experimental result shows that it not only tracks the global optimum within the small search interval but also able to obtain good result for large and asymmetrical search space and also insensitive to initialization of the problems. Further, tests are carried out on the benchmark functions from CEC2005, the large dimensional problems of CEC2008 and some real world problems from CEC2011. All the experimental results indicate the effectiveness and efficiency of the proposed EPS-dPSO compared to other traditional algorithms.

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