Effect of Annealing Selection Operators in Genetic Algorithms on Benchmark Test Functions

Abstract

The strategies to find optimal solutions can be broadly categorized into two: exploration and exploitation, but it has been shown in the literature that none can be claimed better than others in all the problems or all stages of the problems. In evolutionary approaches such as genetic algorithm, different operators used are inclined either towards exploration or exploitation but problems demand the operators having the blend of both. In this paper an annealed selection operator has been proposed, the behavior of which is controlled by the current generation i.e. in early cycle of evolution it is more like exploration and gradually it shifts towards exploitation. The experiments have been conducted using five different benchmark functions and implementation is carried out using MATLAB. Results show the improvement over existing selection operators.

References

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Genetic Algorithms, Morgan Kaufmann, 116-121.

**Index Terms**

Computer Science

Artificial Intelligence

**Keywords**

Benchmark functions; genetic algorithm; rank selection; roulette wheel; selection