Genetic Algorithms Parameters Effects in Finding Optimal Solution[1]

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Abstract

Scientists nowadays increased their interest in artificial intelligence because of the rapid development in the modern age. This development increased the complexity of systems in order to consent society rapid needs in getting systems of better reliability and high performance.

Artificial Intelligence solved many difficult and sticky problems.

We are going to define the genetic algorithms(GA) which is one of the artificial intelligence branch because of its ability to solve many complex problems in Different scientific aspects either in computer science[8] or operational research and image processing[7] or social science[9].

In this essay, we used GA to find the maximum value of continuous function within a limited rang to study the effect of some of the most important GA parameters on the performance and accuracy of the results. We noticed the effects of probability of mutation, population size and the number of the repeated operations on the results accuracy and execution time in choosing the Roulette Wheel Selection procedure. After that, we compare between the Roulette Wheel procedure and the Elitism Selection procedure.

Key words: genetic algorithms, selection, crossover, population size, mutation