A Retrievable Genetic Algorithm for Efficient Solving of Sudoku Puzzles

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Abstract : Sudoku is a logic-based combinatorial puzzle game which is popular among people of different ages. Due to this popularity, computer softwares are being developed to generate and solve Sudoku puzzles with different levels of difficulty. Several methods and algorithms have been proposed and used in different softwares to efficiently solve Sudoku puzzles. Various search methods such as stochastic local search have been applied to this problem. Genetic Algorithm (GA) is one of the algorithms which have been applied to this problem in different forms and in several works in the literature. In these works, chromosomes with little or no information were considered and obtained results were not promising. In this paper, we propose a new way of applying GA to this problem which uses more-informed chromosomes than other works in the literature. We optimize the parameters of our GA using puzzles with different levels of difficulty. Then we use the optimized values of the parameters to solve various puzzles and compare our results to another GA-based method for solving Sudoku puzzles.

Keywords : genetic algorithm, optimization, solving Sudoku puzzles, stochastic local search
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