

Hardware for Genetic Algorithm

Authors : Fariborz Ahmadi, Reza Tati

Abstract : Genetic algorithm is a soft computing method that works on set of solutions. These solutions are called chromosome and the best one is the absolute solution of the problem. The main problem of this algorithm is that after passing through some generations, it may be produced some chromosomes that had been produced in some generations ago that causes reducing the convergence speed. From another respective, most of the genetic algorithms are implemented in software and less works have been done on hardware implementation. Our work implements genetic algorithm in hardware that doesn't produce chromosome that have been produced in previous generations. In this work, most of genetic operators are implemented without producing iterative chromosomes and genetic diversity is preserved. Genetic diversity causes that not only do not this algorithm converge to local optimum but also reaching to global optimum. Without any doubts, proposed approach is so faster than software implementations. Evaluation results also show the proposed approach is faster than hardware ones.

Keywords : hardware, genetic algorithm, computer science, engineering

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