Abstract

The Genetic Algorithms are generally used to draw a similarity between the Genetic mutation and Cross Over within populations from the field of biology. Genetic algorithms are highly and significantly parallel in nature and performance. These types of algorithms can be used to solve many other important problems such as the Graph Partitioning problem that deals with partitioning of graph, the famous Travelling salesman problems etc. Implementation of these algorithm shows a trade-off between Genetic search capable qualities and execution performance qualities. In this paper we worked in order to improvise the execution performance rate of algorithms, those particular implementations with lesser communications between populations are considered best and highly efficient. In this same direction, we tried to present an algorithm using discrete small subpopulation groups. Therefore, this particular implementation tries to reduce the quality of search of the algorithm. Thus, we tried to improve the quality of this type of search by having a centralized population system. Here, we analyzed some of the other alternatives for the implementation of these algorithms on distributed memory architectures in which centralized data can be significantly implemented. Prediction of tertiary protein structure is also presented in the paper as an example in which we tried to implement these alternatives of parallel algorithms on it. In the last section, we tried to summarize the performance analysis of the various proposed architectures.
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Prediction of Protein Structure using Parallel Genetic Algorithm

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Index Terms

Computer Science  Artificial Intelligence

Keywords

Genetic Algorithms  Protein Structure Prediction  Parallel Genetic Algorithms
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