A Hybrid Genetic Algorithm for 2D Protein Folding Simulations

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Abstract

Protein folding problem is one of the most interesting problem in the medical field, which consists in finding the tertiary structure for a given amino acid sequence of a protein. Protein folding is NP hard problem. In this paper, we hybridized genetic algorithm with a local search algorithm to solve 2D Protein folding problem. This kind of hybridization empower the genetic algorithm exploration and exploitation process. The local search algorithm used is great deluge algorithm, which focus on intensification process. The experiments conducted in this work have shown the good performance of the proposed algorithm compared to similar approaches of the state of the art when dealing with different protein folding optimization problems. In particular, a good tradeoff between search space diversication and intensication is achieved. Possible extensions upon this hybridization are also discussed.

References

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Index Terms

Computer Science Algorithms
Keywords

Protein folding, Genetic algorithm, Great deluge, 2D HP Model.