Abstract

DNA sequence assembly problem is a very complex problem of computational biology. DNA sequence assembly is a NP hard problem there is no single solution available for this kind of problems. DNA sequence assembly refers to aligning and merging fragments of a much longer DNA sequence in order to reconstruct the original sequence. In this paper a solution is
proposed for DNA sequence assembly problem using Particle Swarm Optimization (PSO) with Shortest Position Value (SPV) rule. DNA sequence assembly problem is a discrete optimization problem, so there is need of discrete optimization algorithm to solve it. In this paper continuous version of PSO is used with SPV rule to solve the DNA sequence assembly problem. SPV rule transforms continuous version of PSO to discrete version. Proposed methodology is named as DSAPSO. To check the efficiency of proposed methodology the results of DSAPSO is compared with the results of genetic algorithm (GA).

Reference


Index Terms

Computer Science Pattern Recognition

Key words

DNA sequence assembly Particle Swarm Optimization
PSO

Swarm Intelligence

SPV

Bioinformatics