

Speaker: Dr Mohd Saufee Muhammad

Title: DNA Oligonucleotides Designing using Vector Evaluated Differential Evolution Particle Swarm Optimization

DNA code words or oligonucleotides designing are a multi-objective combinatorial optimization problem that is mainly used in the application of DNA computing. In this research, the DNA words designing approach implied concurrent minimizations of four objective functions namely the H-measure, similarity, hairpin and continuity. The designations is subjected to a predefine range of melting temperature and GC-content. A new multi-population optimizer is employed to design a library of DNA strands. This optimizer is called vector evaluated differential evolution particle swarm optimization (VEDEPSO). A modified VEDEPSO algorithm is also been proposed in this research. The two algorithms are run for 10 times and an average fitness for each population is analyzed. The results obtained from the both VEDEPSO algorithms are indicated by non-dominated solutions which are obtained via Pareto dominance concept.