MULTI-OBJECTIVE PARTICLE SWARM OPTIMIZATION FOR VIDEO OBJECT SEGMENTATION

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ABSTRACT
Research in motion segmentation and robust tracking has been getting more attention recently. Segmentation of moving objects in image sequences plays an important role in video processing and analysis. This involves multi-approaches to obtain better detection. In video sequence, motion segmentation is considered as multi-objective problem. Better representation and processing of the standard image in video sequence, with efficient segmentation algorithm is required. Recently, Multi-Objectives Optimization (MOO) has been a popular topic for researcher and engineers in solving multiple solutions using meta-heuristic algorithm. There are some issues could be effected the parameter criteria for example the large number of parameter criteria present in typical video object segmentation, parameter criteria that always relate with non-linear fashion and difficulty to measure the segmentation performance that define the quality of the segmentation. Because of that, there is need to improve performance evaluation segmentation using multi-objective approaches. Thus, the aim of this study is to propose Multi Objectives Particle Swarm optimization method to intelligently optimizing multi-criteria through motion segmentation process in video surveillance. Experiment based on benchmarked test functions of MOPSO and PSO is evaluated to show the result with respect to the coverage metric of the best point of optimization value. The result indicates that MOPSO is highly good in converging towards the Pareto Front and has generated a well-distributed set of non-dominated solution. Hence, it is a promising solution in multi-objective motion segmentation problem.

KEYWORD
Motion segmentation, Multiobjective optimization, Multiobjective Particle Swarm Optimization (MOPSO)