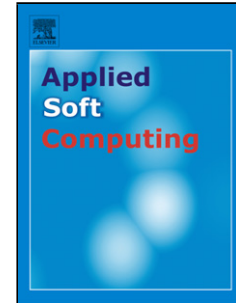


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# A Hybrid Gravitational Search Algorithm with Swarm Intelligence and Deep Convolutional Feature for Object Tracking Optimization

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## Abstract

Large number of object trackers based on particle swarm optimization (PSO) and its variants have been published in the recent decade. However, the majority of algorithms does not perform well when evaluated against the online object tracking benchmark. In the analysis of the existing swarm intelligence based object trackers, pre-mature convergence, loss in particle information and inadequate feature are identified as the factors that hinder the performance of this class of trackers. In this regard, this paper proposes to use the hybrid gravitational search algorithm (HGSA) to increase the utilization of particle information and to facilitate thorough search inside the video frame before convergence. HGSA elegantly combines GSAs gravitational update component with the cognitive and social components of PSO using a novel weight function. The

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