A mobile camera tracking system using GbLN-PSO with an adaptive window

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ABSTRACT
The availability of high quality and inexpensive video camera, as well as the increasing need for automated video analysis is leading towards a great deal of interest in numerous applications. However the video tracking systems is still having many open problems. Thus, some of research activities in a video tracking system are still being explored. Generally, most of the researchers are used a static camera in order to track an object motion. However, the use of a static camera system for detecting and tracking the motion of an object is only capable for capturing a limited view. Therefore, to overcome the above mentioned problem in a large view space, researcher may use several cameras to capture images. Thus, the cost will increases with the number of cameras. To overcome the cost increment a mobile camera is employed with the ability to track the wide field of view in an environment. Conversely, mobile camera technologies for tracking applications have faced several problems; simultaneous motion (when an object and camera are concurrently movable), distinguishing objects in occlusion, and dynamic changes in the background during data capture. In this study we propose a new method of Global best Local Neighborhood Oriented Particle Swarm Optimization (GbLN-PSO) to address these problems. The advantages of tracking using GbLN-PSO are demonstrated in experiments for intelligent human and vehicle tracking systems in comparison to a conventional method. The comparative study of the method is provided to evaluate its capabilities at the end of this paper.

KEYWORDS:
Dynamic tracking; particle swarm optimization; an adaptive window; pattern matching; mobile camera

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