Abstract

Effective image segmentation remains a challenging process as it constitutes a critical step to higher level image processing applications such as pattern recognition. In this paper, we present bio-inspired formulation to perform unsupervised image segmentation. Specifically, we used the Quantum PSO, the hybrid Gravitational PSO algorithm, a cooperative gravitational approach and the bees approach as powerful global classifiers to optimize the partition of image data into homogenous regions. The segmentation accuracy based on the bees’ algorithm has the highest accuracy.

References

Bio-Inspired Algorithms for Color Image Segmentation

- Ouadfel S, BatoucheM, Ant colony system with local search for Markov random field image segmentation, ICIP (1) 2003: 133-136
- J. Kennedy, &quot;The Particle Swarm: Social Adaptation of knowledge&quot;; Proceedings of the IEEE International Conference on Evolutionary Computation, Indianapolis,
Bio-Inspired Algorithms for Color Image Segmentation

Indiana, USA, pp. 303-308.

Index Terms

Computer Science

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Keywords

Image segmentation  Quantum PSO  the Gravitational search algorithm  cooperative coevolution  the bees algorithm