Ant Colony Optimization with the Fusion of Adaptive K-means and Gaussian Second Derivative for Image Segmentation

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Abstract

In this study, proposed an ant colony optimization (ACO) with the fusion of adaptive k-means and Gaussian second derivative for image segmentation. With the use of two algorithms will enhance the segmentation accuracy and speed up algorithm convergence. In the Gaussian second derivative, it is used for enhancing edges of an image because some information loses in the previous algorithm. The experimental process proved that a new hybrid clustering algorithm is more efficient than previous algorithms. Principally, this algorithm has better results in image segmentation. The proposed method can get profit of the K-means clustering for image segmentation in the aspects of less execution time. Also, it can get the benefits of ACO in the aspects of f-measure accuracy.

References

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ACO, Gaussian Second Derivative and K-means.