

Polygonal Approximation of Digital Curve Using Artificial Bee Colony Optimization Algorithms

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Abstract

In image processing and pattern recognition, it is an important concept defining two-dimensional objects in the image [1]. Firstly, the dominant points of the edges of the object (corner points) are determined while objects are defined. Objects with the help of the dominant points compared to a polygon, then the number of edges or vertices are determined. The purpose of the dominant point, the desired object is to represent, using fewer points. Thus, in practice, it is realized large memory, and trading volume. The problem is how to select these points. According to number of dominant point of any object, all combinations of boundary pixels is tested. Thus the exact solution is used in polygonal approach that gives the least error. If the object is small, and the required number of points is less, the exact solution will give the best results. However, if the required number of combinations is more, deterministic solution is impossible. Therefore, for solving the problem it is needed a stochastic search algorithm are needed. In this case, artificial bee colony (ABC) algorithm selected. ABC algorithm has been developed by modeling the bees look for food in bulk [2]. In this study, the advantages and shortcomings of the ABC method were examined by comparing ABC method with Genetic algorithm method

Keywords: *Dominant Point, Digital Curve, Polygonal Approximation, Artificial Bee Colony Algorithm*

References

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