An Improved Fractal Image Compression Approach by Using Iterated Function System and Genetic Algorithm

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ABSTRACT

The paper introduces the basic theory of iterated function systems (IFS theory) and genetic algorithm (GA), on the basis of which, we present an improved method to automatically generate a binary image affine IFS and achieve a fractal image compression. We adopt a natural variable-length genotype encoding to represent the individual. And the multi-object fitness function is also applied in this algorithm. Both theoretical analysis and experiments show a higher compression ratio and better quality images by using this algorithm.

Keywords Fractal Image Compression Iterated function system (IFS) Genetic Algorithms