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Evolution of the Discrete Cosine Transform Using Genetic Programming

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Abstract

Image compression is a important method in image transmission, storage and manipulation. There are many successful techniques which have been developed. Most of these methods are based on some type of rule based algorithm. The cosine transform plays a very important role in image compression. It is a standard transform used by the widely used JPEG standard. Through the use of genetic programming, we successfully evolve a programmatic cosine transform based on genetic programming. The cosine transform has been heavily researched and many efficient methods have been determined and successfully applied in practice. Here, we only suggest 'another' method to do the same work. Due to the limited power of our resources, we restricted our work to a 4 point cosine transform. As a result, an approximation to the transform is evolved by the genetic programming paradigm. In theory, the 8 point cosine transform can be evolved using a similar technique.