عنوان مقاله:

A Novel GA-Based Method for n-Dimensional Point Pattern Matching

محل انتشار:

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خلاصه مقاله:

Point pattern matching (PPM) is an important problem in pattern recognition, digital video processing and computer vision. In this paper novel robust and fast procedure based on Genetic Algorithm, for n-dimensional PPM is described. Most matching techniques solved the PPM problem by determining the correspondence between points localized spatially within two sets, then to get the proper transformation parameters, solved a set of equations. In this paper, we use this fact that correspondence and transformation matrices are two unitary polar factors of Grammian matrices. We estimate one of this factors by the Genetic Algorithm's population and evaluate this estimation by computing another factor using fitness function. This approach is easily implemented one and because of using the genetic algorithm in it, its computational complexity is lower than other knownmethods. Simulation results on randomly generated points patterns and real point patterns with varying amount of noise, show that the algorithm is very effective.

کلمات کلیدی:

Point Pattern Matching, Genetic Algorithm, Matrix Polar Decomposition

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