

# A Novel Image Matching Algorithm Based on Graph Theory

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**Abstract:** SIFT algorithm plays an important role in the field of image matching. However, the feature points extracted by SIFT algorithm distributing among the whole image. This situation result in the feature points are not concentrated. This paper developed a new G-SIFT algorithm based on the SIFT algorithm. The G-SIFT algorithm combines the graph theory with the SIFT algorithm, removing the SIFT feature points, which are not concentrated. In the graph theory, every feature point is treated as a vertex. The unary terms of these vertices is taken as edges of graph. The feature points are processed according to those edges. The experiments show that the feature points matching results are more concentrated and concentration rate is improved by 12%.

**Keywords:** SIFT; G-SIFT; Graph theory; Feature point matching