

# **BATIK IMAGE CLASSIFICATION USING GRAY LEVEL CO-OCCURRENCE MATRIX (GLCM) AND K-NEAREST NEIGHBOR (KNN)**

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## **ABSTRACT**

*Batik is a work of art in the form of textiles and native Indonesian culture. In the past, most batik motifs were still in the form of animals and plants. Along with the development of the era, batik motifs have penetrated into abstract motifs in the form of clouds, temple reliefs, puppets, and others. One of the problems with batik is that batik has very diverse motifs and colors, making it difficult to classify batik into certain classes. Therefore, in this study the authors built a batik image classification system. This study aims to build a batik classification system based on batik motifs using a gray level co-occurrence matrix and k-nearest neighbor with the Euclidean distance and manhattan distance formulas. In this study, the batik image classification process begins with changing the full color image into a gray image. The feature extraction stage uses a gray level co-occurrence matrix with an angle of 0°. The final stage of classification uses k-nearest neighbor. The result of this research is the system is able to identify batik, but not all batik is classified properly. From the results of research using 900 images of batik with 10 classes which are Cendrawasih, Dayak, Ikat Dip, Kawung, Lasem, Megamendung, Parang, Poleng, Sekar Jagad and Patch, it produces the highest level of accuracy at the value of  $k = 5$  with the manhattan distance calculation algorithm. With the highest average accuracy in all types of batik of 33.33%. and the lowest at the value of  $k = 3$  with the Euclidean distance calculation algorithm of 26.7%.*

**Keywords:** *Classification, Batik, Gray Level Co-Occurrence Matrix, K-Nearest Neighbor*