

ABSTRACT

CLASSIFICATION OF BANYUMASAN BATIK MOTIFS IMAGE USING THE CONVOLUTIONAL NEURAL NETWORK (CNN) ALGORITHM

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Batik as Indonesia's cultural heritage has historical meaning inherited through the art of wax painting or decorating cloth with wax and cannot be separated from the influence of the culture of its regional origin. Banyumasan batik stands out with its diverse and unique motifs, and several batik motif patterns take basic patterns from other motifs, making them a little difficult to identify. This research aims to apply the Convolutional Neural Network (CNN) model and determine the performance produced by the CNN model in classifying images of Banyumasan batik motifs. The main dataset consists of 5,148 images with 11 types of motifs collected directly from batik centers, and a data augmentation process was carried out to increase the quantity and diversity of the dataset. Preprocessing results involve image resizing, conversion to grayscale, and Canny edge detection. Four CNN models with different architectures are constructed and compared. Model evaluation is done by calculating accuracy, precision, recall, and f1-score using the Multi-Class Confusion Matrix. The application of hyperparameters to the CNN model in the form of using neuron values (24, 48, 96, 192), dense values of 384, padding of the same form, and dropout values of 0.2 and 0.5 can increase accuracy values and reduce overfitting. The evaluation results of the CNN model with the best performance obtained an accuracy of 96%, precision of 96%, recall of 96%, and f1-score of 96%.

Keywords: Banyumasan Batik Motifs, Convolutional Neural Network, Image Classification