

Abstract

In this paper, we present an algorithm of flower classification. The image data used in this study was obtained from the Oxford 102 Flowers dataset. We classified 16368 flower images which were obtained by applying a set of augmentation process on each image in the dataset. The images were segmented by using GrabCut method. Then, a hybrid method of feature extraction was employed to the segmented images. The so-called Moment Invariants was used to extract shape features whereas the Color Moments was employed to extract color features. The proposed hybrid method of feature extraction is proven to be good for declaring objects by considering color, shape, and object area. Further, we implemented Random Forest as the classifier. The proposed algorithm of flower classification provided satisfactory results based on stratified k-fold cross-validation tests where an optimal k value was obtained by using the elbow method. Our experimental results shows that the proposed model yields accuracy of 88,74%.

Keywords : Flowers, Classification, Moment Invariants, Color Moments, Random Forest