AUTOMATED FLOWER CLASSIFICATION USING HOG FEATURES

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Flower classification is an important task in many applications. Although, many flower classification frameworks have been proposed in the past, their accuracies are considerably low since intra-class variations of flowers are much lower. This study focuses to propose an automated flower classification system for 17 species. The classes of flowers are different one to another based on their colour, shape, size, and texture. In the pre-processing of the proposed approach, all the training samples are resized to a fixed size. The Histogram of Oriented (HOG) feature is used to extract the information of individual classes from each sample. Support Vector Machine (SVM) classifier is used for the classification and 'one-verses-all' mechanism is followed for multi-class classification. The proposed framework is evaluated on a benchmark dataset (from Oxford University), which has 1360 images of 17 flower species. In the proposed approach, 952 samples were used for training and remaining 408 were used for testing. The training and testing process were conducted for three different image sizes: 32x64, 64x64, and 256x256. Based on the experimental results, the highest average accuracy of 94% was obtained for 32x64 resize images.

Keywords: histogram of oriented gradients (HOG), support vector machine (SVM), flower classification.