Abstract

Automatic classification of bird species from digital images poses a significant challenge for ornithologists, particularly in birdwatching activities that are crucial for bird conservation. This study aims to develop a bird species classification system using Convolutional Neural Network (CNN) methods, which have proven effective in handling visual variations such as diverse backgrounds and lighting conditions in natural bird habitats. In this research, two popular CNN architectures, VGG16 and VGG19, were employed to classify 25 species of Indian birds. The dataset used consists of 22,600 bird images, divided into train, validation, and test sets. The results indicate that the VGG19 model, with a batch size of 64 and a learning rate of 0.0001, provided the best performance, achieving 92% training accuracy and 91% testing accuracy. In conclusion, the CNN method, particularly with the VGG19 architecture, is effective in classifying bird species from digital images, and these findings are expected to contribute to bird conservation efforts through automated monitoring.

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Keywords: Bird species, digital image, classification, CNN.