Abstract

Identification of bird species is a difficult problem that pushes the limits of the visual abilities for both humans and computers. Although different bird species share the same basic set of parts, different bird species can vary dramatically in shape and appearance[5]. Sometimes professional bird watchers disagree on the species given an image of a bird. Intra-class variance is high due to variation in lighting and background and extreme variation in pose (e.g., flying birds, swimming birds, and perched birds that are partially occluded by branches).

In this paper, a simple image recognition classifier has been created. This image recognition tool classifies various species of birds. An application CNN has been used in order to extract features from the input image. Convolution preserves the spatial relationship between pixels by learning image features using small squares of input data. Then application of some of the supervised and unsupervised algorithms is used to check and compare their accuracies against each other.
The aim is to find which learning algorithm’s accuracy is best in predicting a particular specie of bird given any image of it.

References

4. “Bird Species Identification from an Image” Aditya Bhandari, Ameya Joshi, Rohit Patki1Department of Computer Science, Stanford University2Department of Electrical Engineering, Stanford University3Institute of Computational Mathematics and Engineering, Stanford University
5. Discriminative Features for Bird Species Classification Cheng Pang Hongxun Yao Xiaoshuai Sun School of Computer Science & Technology, Harbin Institute of Technology, China{pangcheng3, h.yao, xiaoshuaisun}@hit.edu.cn
8. The Application of Two-level Attention Models in Deep Convolutional Neural Network for Fine-grained Image Classification Tianjun Xiao1 Yichong Xu2 Kuiyuan Yang2 Jiaxing Zhang2 Yuxin Peng1* Zheng Zhang3 1 Institute of Computer Science and Technology, Peking University
11. Optimal image scaling using pixel classification C.B. Atkins; C.A. Bouman; J.P. Allebach
12. Unsupervised multistage image classification using hierarchical clustering with a bayesian similarity measure Sanghoon Lee; M.M. Crawford
Analysis of Learning Techniques: Bird Species Classification

Index Terms

Computer Science

Information Sciences

Keywords

CNN, Image classifier, accuracy, bird species.