Dog Breed Detection Using Deep Learning'

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Abstract

There are numerous breeds of dogs in the world, making it nearly impossible to identify each one.
If someone goes into the woods or finds a dog in the street and doesn't know what kind of dog it is and approaches it, it could be a wild dog that injures or kills the person.
To avoid this, we are working on a system for identifying dog breeds.

Introduction

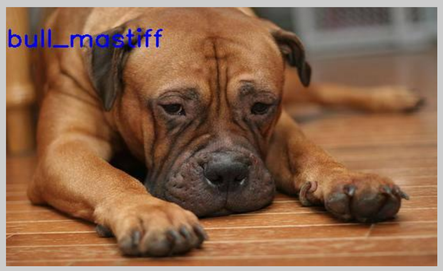
We developed a system that will collect various inputs, analyse them, and then predict the breed of a dog based on a trained data set.
To put it another way, it will learn from the information.
To account for diversity, our data set includes 120 dog breed classes.
To make the best use of the concepts mentioned, the information will be saved in the order in which it was learned.
Before it is ready to run, the model will be trained on many images so that it can identify dog breeds with precession.

Methodology

The models employ a total of 120 classes, which include test and train data.
There will be a large amount of data fed into the system to train on the image taken as input and convert it to RGB values.
The model will be trained using RGB values.
The CNN model is employed.
When the data set is small, transformer learning is used.

Train

Test



Results

When a photo is inserted into a trained model, the model begins checking it, comparing it to previously trained and labelled photos, and then it returns a result indicating which class this dog belongs to.

Applications

It can be used by veterinarians to quickly diagnose the dog they are treating.
There are many street dogs in Pakistan that can be dangerous to people; this model may simply assist them in identifying the dogs.
If you see a dog, instead of asking the arrogant owner, take a photo of it and then put it in the model to get the answer.

Technologies used

Keras

Google Colaboratory

OpenCV

TensorFlow

References

https://tensorflow-object-detection-api-tutorial.readthedocs.io/en/latest/training.html