AI Semester Project

Dog Breed Detection

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Project Overview

In this AI project, our team aims to develop a classifier that differentiate different dog breed (dog species) based on a transformer learning neural network model.

Motivation

There are numerous types of Dogs in the world and it nearly becomes impossible to identify each one of them.

If someone is going in woods or finds a dog in the street he/she doesn't know what kind of dog it is and tries to go near it, it may be wild dog which may injure the person or possible kill them. To avoid such kind of scenarios, we are developing a system to identify dog breeds.

It can be used by vet to quickly identify the dog they are treating. In Pakistan there are many street dog which can be dangerous for the people this model ay simply helps them identifying the dogs. If you see any dog rather than asking the owner of the dog, you simply take photo if it and then put it in the model and get the answer

Challenges

Since this is a deep learning-project, so the dataset is the key here (generally perceived notion is that dataset must be massive to produce meaningful results).

Despite having modicum data, we hope to train a decent model with the help of Transfer learning.

Results

As photo is inserted into to trained model, the model starts checking it, using the already trained and labeled photos and compare it with them and then it will provide result telling which class does this dog belongs to.

We developed a system that will collect various inputs, analyze 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. Our data set includes 120 dog breed classes accommodating ample diversity.

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.

Tools

- Tensarflow
- Keras
- Google Colab
- Cnn model for image classification
- Cv2
- Glob
- Sklearn

Methodology

Total of 120 classes used in the mode consists of test data and train data. There will be many data that will be fed to the system to train on

1. Image taken as input and convert them to RGB values.
2. RGB values will be used to train the model.
3. CNN model is used.
4. Transformer learning is used as data set is less.

References

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

https://keras.io/api/ **https://colab.research.google.com/?utm_source=scs-index**