Dogs vs. Cats Dataset:

Create an algorithm to distinguish dogs from cats.

The training archive contains 25,000 images of dogs and cats. Train your algorithm on these files and predict the labels for test1.zip (1 = dog, 0 = cat).

Dataset Link: https://www.kaggle.com/c/dogs-vs-cats/data

Content

The Asirra data set

Web services are often protected with a challenge that's supposed to be easy for people to solve, but difficult for computers. Such a challenge is often called a CAPTCHA (Completely Automated Public Turing test to tell Computers and Humans Apart) or HIP (Human Interactive Proof). HIPs are used for many purposes, such as to reduce email and blog spam and prevent brute-force attacks on web site passwords.

Asirra (Animal Species Image Recognition for Restricting Access) is a HIP that works by asking users to identify photographs of cats and dogs. This task is difficult for computers, but studies have shown that people can accomplish it quickly and accurately. Many even think it's fun! Here is an example of the Asirra interface:

Asirra is unique because of its partnership with Petfinder.com, the world's largest site devoted to finding homes for homeless pets. They've provided Microsoft Research with over three million images of cats and dogs, manually classified by people at thousands of animal shelters across the United States. Kaggle is fortunate to offer a subset of this data for fun and research.

Steps to Perform the Model:

1. Download the dataset from Kaggle
2. Import the libraries
3. Extract the train zip file
4. Create a Dataframe from train data
5. Display some images from train data
6. Now build a CNN model
7. Compile the model
      a) using optimiser SGD
      b) using optimiser ADAM

c)change the learning rates

d)Use early stopping

8.DataPreparation

a) Encode Labels

b) Create validation set

c) create Train Image data generator

d) create Validation data generator

9. Train the model

10.Save the parameters

11.Find Accuracy score

(Minimum 5 models Required)

12. Model1: Use dropout after conv & Fully connected layers without Batch normalization

- Model2: Remove drop out, use Batch normalization
- Model3: Remove dropout & use L2 regularization
- Model4: Use dropout after convolution layer, L2 in Fully connected layer, Batch
- normalization after conv-Layer
- Model5: Add a new convolution layer.

13.Plot train loss and test loss and train accuracy and test accuracy.

14. Apply the models on the test and save the predictions

Note: For any doubt's clarifications, Join the mentor session from 2:00 pm to 6:00 pm or reach us on Discord 10:00 AM to 5:00 PM.

Thanks, and Regards,

Innomatics.