Pattern Recognition and Machine Learning

Course Project Readme File

Project Title

Natural Image Processing on CIFAR-10 dataset

Team Members

Kartik Narayan (B19CSE110)
Kotha Pranith Reddy (B19EE044)
Manav Gopal (B19CSE112)

How to get to our project

- Download the .ipynb file provided in the zip folder.
- Open google colaboratory on any web browser.
- Upload that ipynb file on that collab note book.
- You can see all the code in blocks and their results
- If you want to rerun the code then press ctrl+enter to run a particular block and ctrl + F9 to run the whole colab notebook at once.(not suggested as it may take a lot of time to run the whole colab notebook)

Structure and Process of Execution

- Our project is on Natural image classification over the Cifar-10 dataset which contains 32*32 size pictures of 10 different classes having 6000 images per class.
- We tried different classifiers and finally used three different classifiers which are Random Forest, Multilayer Perceptron and Convolution neural network.
- We used different methods to increase the accuracy of the classifiers by using grid search, varying number of epochs and data augmentation etc.

- Structure : Program consists of 4 models, Random Forest, Multilayer Perceptron, CNN without data augmentation and CNN with data augmentation
- The best result Comes out for the CNN model with data augmentation which is approx 82%.

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Thanking You

Course Instructors

Dr. Richa Singh, Dr. Yashasvi Verma, Dr. Romi Banerjee