

Pneumonia Detection using CNN

Domain : Computer Vision, Machine Learning
Sub-Domain : Deep Learning, Image Recognition
Techniques : Deep Convolutional Neural Network, ImageNet, Inception
Application : Image Recognition, Image Classification, Medical Imaging

Description

1. Detected Pneumonia from Chest X-Ray images using Custom Deep Convolutional Neural Network and by retraining pretrained model “InceptionV3” with 5856 images of X-ray (1.15GB).
2. For retraining removed output layers, freeze the first few layers and fine-tuned the model for two new label classes (Pneumonia and Normal).
3. With Custom Deep Convolutional Neural Network attained testing accuracy 89.53% and loss 0.41.

Code

https://colab.research.google.com/drive/1iFeCZBxL_qiqsTcczBDa0xUCgppMGGGrn?usp=sharing

 PD.ipynb

Dataset

Dataset Name : Chest X-Ray Images (Pneumonia)

Dataset Link : <https://www.kaggle.com/datasets/paultimothymooney/chest-xray-pneumonia>
: [Chest X-Ray Images \(Pneumonia\) Dataset \(Original Dataset\)](#)

Dataset Details

Dataset Name : Chest X-Ray Images (Pneumonia)

Number of Class : 2

Number/Size of Images : Total : 89,397,093 bytes (89.8 MB on disk) for 195 items

Training : 79,352,188 bytes (79.7 MB on disk) for 151 items

Testing : 10,038,757 bytes (10.1 MB on disk) for 43 items

Model Parameters

Machine Learning Library : Keras,numpy,pandas,seaborn,matplotlib,tensorflow
Base Model : Convolutional Neural Network

Tools / Libraries

Languages : Python

Tools : Google Colab

Libraries : Keras, TensorFlow, Inception, ImageNet

Steps to run the code:

Step 1: Access Google Colab

- Go to [Google Colab](#)
- Sign in with your Google account if you haven't already done so.

Step 2: Open the Notebook  PD.ipynb

Step 3: Upload the given data to your drive and provide the drive access to the notebook

Step 4: Click the runtime option in the menu bar and click Run All

The session may take some time to complete the execution. You may see the results and the plots after the runtime is completed.