LaTeX Brain Tumor Type Classificaiton Project Documentaiton

Abstract

This project Uses a Dataset of images showing different types of brain tumor as a training set for the sake of classifying futrue samples.

1. Introduction

The images in the dataset show exactly three types of brain tumor: Meningioma, Glioma, Pituitary tumor. The dataset contains assigned labels to each of these types: 0, 1, 2 respectively.

1.1. Programming Language

Python

1.2. Mapping

Mapping the dataset images was carried out by saving their paths along with their assigned labels to a text file called Map.txt

1.3. Mathematics

Mathmatics functions used in the project are conv2d,maxpool2d,localresponsenormalization.
These funcitons are a part of tflearn liberary.

2. Code Details

First, Building classifier:-

Loading data using imagepreloader imported from tflearn.datautils.

Preprossing:

the dataset is reshaped in order to be fed to the CNN classifier.

Building a deep neural network:-

We are building a 13-layers neural network using TFLearn. We need to specify the shape of our input data. In our case, each sample has a total of 784 features and we will process samples per batch to save memory, so our data input shape is [None, 28,28,1] ('None' stands for an unknown dimension, so we can change the total number of samples that are processed in a batch).

Then, the classifier is trained using the dataset and tested.

3. References

The whole project was uploaded on Github: https://github.com/Kamzoki/NNProject You can also find the project on the same DVD which this document on, along with all the assets.