Malaria Prediction App

Abstract

The traditional way of diagnosing malaria is by examining the blood smears of the human beings for infected red blood cells under the microscope. This process takes much time and the diagnosis depends on the experience and the class of examination.

This paper proposes a new machine learning model based on convolution neural networks which automatically classifies and predicts infected cells in the thin blood smears. 400 above images are used to understand the parameter of the cell.

1.1 Convolutional Neural Networks

CNN models stand for one of the oldest deep neural networks hierarchy that have hidden layers among the general layers to help the weights of the system learn more about the features found in the input image. A general CNN consist of distinct types of layers. The convolutional layer applies an array of weights to all of the input sections from the image and creates the output feature map. The pooling layers simplify the information that is found in the output from the convolutional layer. The last layer is the fully connected layer that oversees the gathering of the findings from former layers and provides an N-dimensional vector, where N stands for the total number of classes.

2.1 Dataset

The real-world dataset have been selected to conduct the experimental tests. In order to adapt the datasets to the algorithms, a short period of time was spent at the beginning of the project to make sure that every image has the correct format of png. These changes lead to a smooth running of the tests. The source of the dataset is kaggle https://www.kaggle.com/iarunava/cell-images-for-detecting-malaria where the large sum of real world datasets are available.

2.2 Working of the Project

In this app, users to get instant prediction on their malaria disease through an intelligent system online. The malaria Disease Prediction web application is an end user project. It then processes user specific details to check for malaria disease that could be associated with the inputs received from user. Here we use VGG19 is an innovative object-recognition model that supports up to 19 layers. Built as a deep CNN, VGG also outperforms baselines on many tasks. VGG is now still one of the most used image-recognition architectures.

3. System Requirements

    I. Hardware Requirement

    a. Laptop or PC

    b. i3 processor system or higher

    c. 8 GB RAM or higher

    d. 100 GB ROM or higher

II. Software Requirement

a. Operating system : Windows 7 or higher

b. Programming Language: Python

c. Visual Studio code

4.1 Advantages

→ User can easily get the malaria disease prediction on single click.

→ System is kept online in order to serve people 24x7.

4.2 Limitations

a. The system is not fully automated.

b. Wrong inputs will affect the project outputs.

c. Training data needs to be accurate in order to get prediction.

References:
https://www.mathworks.com/help/deeplearning/ref/vgg19.html;jsessionid=7fcba84551acd8961a0c6331a3d8