

Malaria And Dengue Disease Prediction Based on Blood Cell Image Using Machine Learning

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ABSTRACT

The health care environment is found to be rich in information, but poor in extracting data from the knowledge. This is often due to the shortage of effective analysis tool to get hidden relationships and trends in them. By applying the machine learning algorithms and techniques, valuable knowledge are often extracted from the health care system. Malaria and Dengue fever have cluster of condition affecting the structure and functions of body and has many root causes. We tend to area unit exploitation Deep Learning algorithms to extend the accuracy of Malaria and Dengue Disease prediction System. We also expand this technique to research the actual area to maximum patient were health is weak based on hospital patient data with the assistance of clustering. It is enforced as desktop application during which user submits the heterogeneous data like text and image of blood cells symptoms. It retrieves hidden information from stored database and deep learning model and compares the user values with trained data set.

Keywords- Machine learning, Disease prediction, Area detection, Malaria, Dengue.

I. INTRODUCTION

Welcome to the AI for Social Good Series, where we will be focusing on different aspects of how Artificial Intelligence (AI) including with popular open-source tools, technologies and frameworks are getting used for development and betterment of our society. "Health is Wealth" is probably a clichéd quote yet very true! During this system, we will check out how AI are often leveraged for detecting malaria, a deadly disease and therefore the promise of building a low-cost, yet effective and accurate open-source solution. The intent of the system is two-fold understanding the motivation and importance of the deadly disease Malaria and Dengue and therefore the effectiveness of deep learning in detecting Malaria and Dengue.

Modern A major challenge facing healthcare organizations (hospitals, medical centres) is the provision of quality services at affordable costs. Quality service implies identification of diagnosing patients correctly and administering treatments that are effective. Poor clinical choices will lead to disastrous consequences which are therefore unacceptable. Hospitals must also minimize the value of clinical tests. They can achieve these results by using acceptable computer-based information and/or decision support systems. Most hospitals nowadays use employ some sort of hospital information systems to manage their healthcare or patient data.

II. PROBLEM STATEMENT

Dengue and malaria fever could be a major drawback in several developing countries, including India. For dengue patient monitoring, platelet count is significant to make sure early treatment so as to stop disease complications. In primary health care centres platelet counting is usually performed manually, which is labour intensive and needs an intimate with laboratory technician. Another method used, is that the Advia hematology analyzer, which is extremely expensive, not affordable for rural and remote areas. To deal with the present day challenges, developed an automatic approach for the detection of dengue and malaria using the blood cell images based on machine learning, along side the symptoms helps in assisting the detection of dengue fever and malaria.

III. LITERATURE SURVEY

Alif Bin Abdul Qayyum, Tanveerul Islam, Md. AynalHaque [1] Proposed three different dilation approaches were used among which Fibonacci series-wise dilated CNN model performed best altogether metrics like accuracy (96.05%), precision (95.80%), recall (96.33%) and F1 score (96.06%) while working with a dataset of 27,558 cell images.

Feng Yang*, MahdiehPoostchi, Hang Yu, Zhou Zhou, KamolratSilamut, Jian Yu, Richard J Maude, Stefan Jaeger*, Sameer Antani[2] This work investigates the likelihood of automated malaria parasite detection in thick blood smears with smart-phones.

They developed the primary deep learning methodology which will detect malaria parasites in thick blood smear images and might run on smart-phones.

WanchaloemNadda, WarapornBoonchieng, and EkkaratBoonchieng [3] Proposed. In this research

they use machines to classify patients as dengue and non-dengue patients. They used the text of symptoms of the patients for input data. They used the dataset is that the treatment data from the patients with fever, cold, flu, pneumonia, and Dengue from the hospital.

Octave Iradukunda, HaiyingChe, JosianeUwinez, Jean Yves Bayingana, Muhammad S Bin-Imam, Ibrahim Niyonzima [4] During this paper, an appropriate model is designed to detect malaria with accuracy. A single hidden layer feedforward neural networks methodology namely extreme machine learning(EML) model was applied to classify and predict whether a patient has been suffering from by malaria or not.

Abbas Dhaka. Prabhishek Singh [5] To implement this epidemic system four algorithms are used namely Random Forest Regression, Decision tree regression, Support vector regression, Multiple linear regression.

IV. PROPOSED SYSTEM

A. System Architecture:

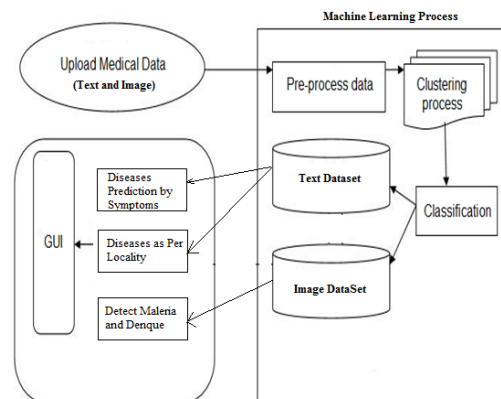


Fig 1. System architecture

The people are affected by various diseases like Dengue, Malaria. This information is collected from the various hospitals and therefore the analysis of data is completed and prediction of some diseases are often

made. This technique gives the prediction as per locality of the area.

B. Description:

Module 1:

During this system we tend to notice the malaria and dengue diseases based blood cell dataset and apply image processing with the help of machine learning technique.

Module 2:

After that we collect the patient data from every hospital in especially area for identify the exactly which area disease will spread out more based on clustering algorithm.

Model 3:

Here offer the module for detecting diseases based on symptoms.

V. CONCLUSION

A robust and novel method by using machine learning for diagnoses malaria and dengue has been implemented during this paper. By using this method we obtain the less than 60 seconds time to offer diagnosis as compared to other clinical laboratories. The prediction algorithm rule is design to predict the area in danger zone of particular disease by considering the locality from the database to calculate the results. The results need to be the same as the Python output, also as keeping to a suitable processing speed and duration. The research will focus on the benefits it can provide for the successful diagnosis of malaria, dengue and therefore the supportive treatment. The system prediction is extremely important within the awareness about the viral disease spreading within the locality as people get alerted by the system about any particular disease in order that they take precautions about that.

VI. REFERENCES

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