A REVIEW - PREDICTION OF COVID-19 CASES USING THE WEATHER INTEGRATED MACHINE LEARNING APPROACH

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Abstract

Sure and fast recognition of COVID-19 virus was not easyas it was spreading rapidly, and the different variants of virus were having different symptoms. In the present study, the relationship between weather factor and COVID-19 cases was checked, and also developed a forecasting model using long short-term memory (LSTM), a deep learning model. The study found that the specific humidity has a strong positive correlation, whereas there is a negative correlation with maximum temperature, and a positive correlation with minimum temperature was observed in various geographic locations of India. The weather data and COVID-19 confirmed case data (1 April to 30 June 2020) were used to optimise uni-variate and multivariate LSTM time series forecast models.

Keywords: *COVID-19, Machine Learning, Prediction, Weather/Climate Change, Temperature.*

1. INTRODUCTION

People from various countries, communities, and age groups have suffered from a drastic transmutation in their daily life style in the last two years due to the spread of COVID-19 pandemic. The pandemic not only effect people medically but emotionally additionally. After facing a huge of quandaries, long research and huge efforts bought us a aversion vaccine for COVID. This review shows the reasons behind the spread and multiplying symptoms of the pandemic. The main aim of this research is to point COVID-19 cases due to atmospheric and climate change. Machine Learning has always show beyond doubt to be best for task associate to presages, regression, neural network, temperature, disease forecasting, etc. There are variety of algorithms available for different tasks in Machine Learning. The primary goal of this research is to alert the medical staff, and the other front line workers in case of emergency or avail them of circumscribed medical equipment. Early presage of COVID-19 cases varying from climate change will definitely avail to truncate the circumstances of high peak.

2. LITERATURE REVIEW

T. Bristy et al. [2], In this paper, the author's focus is to propose an ML based advanced model for public healthcare to reduce and control epidemic outbreaks. Collective knowledge from interconnected disciplines, shared data repository, and diverse roles have been embedded into the proposed framework. An evaluation based on actual COVID-19 related data demonstrates that ML can be used for COVID risk prediction for public health data as well as to take preventive steps to combat epidemics in the early-stage. M. S. Hossain et al.[3], in this article, we propose a B5G framework that utilises the 5G network's low-latency, high-bandwidth functionality to detect COVID-19 using chest X-ray or CT scan images, and to develop a mass surveillance system to monitor social distancing, mask wearing, and body temperature. Three DL models, ResNet50, Deep tree, and Inception v3, are investigated in the proposed framework. Furthermore, blockchain technology is also used to ensure the security of healthcare data. Ram Kumar Singh et al[4], using results alongside a complementary SIR model, find that one-third of the Indian population could eventually be infected by COVID-19, and that a complete recovery from COVID-19 will happen only after an estimated 450 days from January 2020. Further, our SIR model suggests that the pandemic is likely to peak in India during the first week of November 2020.

L. Wang et al[5], in this paper, authors introduce a machine learning predicated COVID infection prognosticator. Quantified the presage precision of five ML models. They used Chi-square test and erudition-predicated manual feature cull to cull consequential features for prognostication to abbreviate prognostication time overhead without compromising prognostication precision.

M. Rohini et al[6], this research finds the patients exposed to Covid-19 and could be utilised as a reference, by the patients afore consulting further witst proximate Neighbours (KNN) is efficacious with a presage precision of 98.34h the medico. The model developed utilising K-Mo%, Recall of 97% and an F1-Score of 0.97. Overall, this paper proposes a

simple and practicable method to expeditiously identify and presage the high-risk patients and provide priority to them for treatment so that the fatality rate can be decreased.

3. PROPOSED METHODOLOGY

3.1. Dataset:

The goal of this research is to find the upcoming COVID-19 'potential distribution with an accentuation of the number of positive incipient events, mortality and recuperations. Data from the Git Hub[8], [9] registry, supplied by Johns Hopkins University, Systems Science and Engineering Center, were amassed. The university mostly made the archive for the visual dashboard of the Novel CoronaVirus in 2019 available and the ESRI Living Atlas Team availed it. A file called a Git Center repository (cssecovid19) includes data accumulation files.

3.2. Supervised Machine Learning Models:

Utilisation of Supervised Algorithms avails find the result more expeditious as compared to unsupervised. Supervised ML works on well labelled data and trains them accordingly, hence the result gives high precision and becomes productive. It trains the data congruously with multiple clues and then prognosticates the output. For tasks cognate to Risk Assessment, Image relegation, Fraud Detection, spam filtering, etc. supervised ML is a great cull.

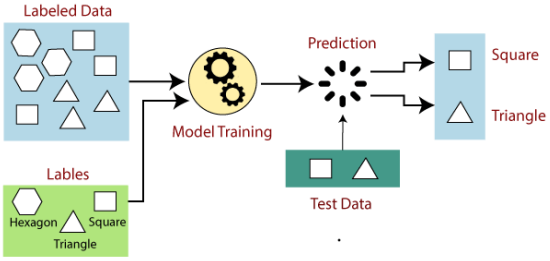

Figure 1. Working of Supervised Machine Learning

For the development of predictive models, Regression techniques and relegation algorithms study methods used here. In this COVID 19 prognostication analysis , regression models of four are utilised:

- Linear Regression
- LASSO Regression
- Support Vector Machine
- Exponential Smoothing

4. CONCLUSION

ML have the potential of detecting disease and virus infections more accurately so that patients' disease can be diagnosed and cure at initial stage, the uncontrolled situation of diseases can be avoided, so that we can reduce the number of patients.This will help the doctors and the staff to plan their strategy ,so that management will be aware of the number of beds available in hospital and in ICU and recovery rate of patients present in the hospital.

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