

On the Analysis of COVID19 - Novel Corona Viral Disease Pandemic Spread Data Using Machine Learning Techniques

Abstract

Coronaviruses are a group of viruses that cause various diseases in mammals and birds. In humans, they cause a range of respiratory disorders. This paper presents the analysis of the transmission of COVID19 disease and predicts the scale of the pandemic, the recovery rate as well as the fatality rate. We have used some of the well-known machine learning techniques as well as mathematical modeling techniques such as Rough Set-Support Vector Machine (RS-SVM), Bayesian Ridge and Polynomial Regression, SIR model, and RNN.

Prediction of Corona Virus Outbreak using Machine Learning

Abstract

Predicting the corona virus can be divided into several phases, including a state-wide analysis that includes active, confirmed, cured, deaths as well as an increase in cases on a daily basis that includes each and every state of India as well as Union Territories. This also includes a thread of new corona virus cases from throughout India and forecasts the outbreak's conclusion in the next days. Machine learning algorithms like SVM, Linear Regression and Decision Tree Regression are used to analyze this data and improve this model's outcome. In this study, Jupyter notebook is used which provides an environment that is suited for machine learning principles. This technique provides for a comprehensive analysis of the virus's spread, including total and active cases, as well as forecasting future outbreaks and a weekly study epidemic.

Textual Dissection of Live Twitter Reviews on Corona Vaccines using Various Machine Learning Algorithms

Abstract

The most popular hash tag on Twitter in 2020 was #COVID19 Vaccination, which got roughly 400 million notices. In this paper, we examine a worldview for unearth the feeling about COVID-19 inoculations among the public from Twitter. After obtaining the misconceptions and ideas in circulation, we suggest a solution for the same through Machine Learning algorithms. Twitter is a well known microblogging social media website where users distribute their perspectives on any topic(s). The ideology of textual dissection describes how people think about a text. It's the process of categorising tweets into positive and negative groups. Tweepy and TextBlob are Python libraries that can be used to extract and classify Tweets using Machine Learning methods including Naive Bayes (NB), Support Vector Machine (SVM), K-Nearest Neighbors (KNN), and Decision Tree. The goal is to make analysis, summarization, and classification as straightforward as possible. These computations comprise a positive, negative, or neutral assessment of Twitter data. In light of public perception, we hypothesize the best immunization feasible with maximum antibodies based on public perception through opinion research.

A Corona Recognition Method Based on Visible Light Color and Machine Learning

Abstract

Can we detect electric discharge states in gases based on the information on visual images? This article proposes a new kind of method where we build several detection models for different states of corona discharge by applying four kinds of machine learning algorithms to

extract color, brightness, and shape information characteristics of visible images taken by a digital camera. Every model is then tested on a new set of images to measure its performance. The four different machine learning algorithms are support vector machine (SVM), K-nearest neighbor regression (KNN), single layer perceptron (SLP), and decision tree (DT) algorithms. The prediction results show that the color features perform best among all three types of features and the KNN algorithm performs best among all four algorithms. This article also presents a discussion on how to choose the optimal detection areas of images for better detection performance. Our approach shows consistent results across different cameras and camera settings. The results demonstrate that even if only the visible light spectrum emitted from a plasma is captured, the color method can provide sufficient discharge information for economic and convenient use in discharge state detection because the species producing visible radiation are affected by radiation in all bands.

Sentiment Analysis of Public on Social Media about Covid-19 origin theory using Machine Learning

Abstract

Covid-19 has been found in Wuhan, China, for approximately a year and a half ago, and the virus's origin remains a mystery. However, it has been in the news in recent weeks, with reports suggesting that an infectious disease was spilled in a Chinese laboratory, which was previously refuted by a hoax in the area. In this research paper, we have presented a model where there will be a sentimental analysis based on users' comments on social media about the origin of corona virus. Nowadays most people express their feelings and the truth around them and many lies on social media. And we are taking this opportunity to do a sentimental analysis of the true, false, and confusing feelings that people have expressed on social media about the origin of corona virus. We used 20000 data (comments) taken from corona virus-related popular Facebook news posts. In order to achieve the maximum results, we used five distinct machine learning classifiers, and our support vector machine and logistic regression model outscored them all. The support vector model had a testing accuracy rate of 83.73 %, whereas logistic regression had an accuracy rate of 81.39 %. The important thing about our research is that at the end of the whole work, thousands of people's personal feelings, truths, hesitations, and confusion come together to know a strong possibility about the origin of the corona virus.

Prediction of COVID-19 & Pneumonia using Machine Learning & Deep Learning Model

Abstract

As a result of the COVID-19 pandemic, medical examinations (RT-PCR, X-ray, CT-Scan, etc.) may be required to make a medical decision. COVID-19's SARS-CoV-2 virus infects and spreads in the lungs, which can be easily recognized by chest X-rays or CT scans. However, along with COVID-19 instances, cases of another respiratory ailment known as Pneumonia began to rise. As a result, clinicians are having difficulty distinguishing between COVID-19 and Pneumonia. So, more tests were required to identify the condition. After a few days, the COVID-19 SARS-CoV-2 virus multiplied in the lungs, causing pneumonia and COVID-19 named Novel Corona virus infected Pneumonia. We employ Machine Learning and Deep Learning models to predict diseases such as COVID-19 Positive, COVID-19 Negative, and Viral Pneumonia in this research. A dataset of data is used in a Machine

Learning model. A dataset of 120 images was used in the Machine Learning model. By extracting eight statistical elements from an image texture, we calculated accuracy. Adaboost, Decision Tree & Naive Bayes have overall accuracy of 88.46%, 86.4% and 80%, respectively. When we compared the algorithms, Adaboost algorithm performs the best, with overall accuracy of 88.46%, sensitivity of 84.62%, specificity of 92.31%, F1-score of 88% and Kappa of 0.8277. VGG16 Architecture is used in CNN model for 838 images in Deep Learning model. The model's total accuracy is 99.17 %.

Review of ML techniques for analyzing Novel Corona Virus

Abstract

Currently, the demand of machine learning is increasing in healthcare field for disease diagnosis. The various kinds of machine learning algorithms are helping the medical field for prognosis of diseases with accuracy and therefore serving the humankind in timely classification and detection of diseases. This study emphasizes on using different machine learning techniques for analysis of Covid-19 disease prediction. This paper presents the review of several machine learning classifiers such as SVM, Ensemble learning, Multilayered Perceptron, Naive Bayes, KNN and ANN, and analyze their classification accuracies in Novel Corona Virus prediction. The authorized datasets have been considered to perform this analysis. This analysis may serve as good indicator for analysts and medical professionals in selection of efficient classifier for the datasets that may save the time and prediction cost.

RNA Sequence Based Prediction of Coronavirus Using Machine Learning

Abstract

The detection of the virus is a basic concern for the doctors and the virology for over a decades due to the dynamic behavior and mutations of the virus makes it difficult to detect the virus and study its behaviors. Latest computational techniques enables scientists to crate models that are proficient of learning patterns from the data as well as used to make predictions for unseen data.. As machine learning techniques predicts the corona viruses by allowing for their differing genetic purposeful characteristics, we propose machine learning supported coronavirus prediction method Novel-COV-2 Predictor wherever RNA sequences of SARSCoV-1, MERS, and SARS-CoV-2 are used to instruct a classifier so that it can expect any indefinite sequence of these viruses. The RNA sequence is given in the form of the large text files. Consequently, it becomes a text classification complexity. We convert these data in the text files into numerical data using the count vectorization and utilize machine learning to create a model to know the patterns. In this regard, we have considered Support Vector Machine (SVM) algorithm to evaluate and so that SARSCoV-2 can be predicted as untimely as potential to save human life.

Corona Virus Outbreak Prediction Using Machine Learning

Abstract

Predicting the coronavirus is divided into several parts in this research report, including a state-by-state analysis [2], that includes active, total, cured, and death cases, as well as a daily increase in cases that includes India confirmed, death, and recovered cases. This also includes a thread of new coronavirus cases and forecasts how an outbreak will play out in the next days. This model is implemented using Anaconda navigator and Kaggle, an open-source platform. We utilize Kaggle to forecast time series data in order to predict the virus outbreak.

Anaconda Navigator is a free online cloud that gives us with a Jupyter notebook environment that is suited for machine learning ideas. Support Machine learning concepts such as Vector Machine, Regression, and Data Visualization are applied to improve the outcomes of the research. This model includes all available data on the virus's transmission, including total, new, and active cases, as well as forecasting future outbreaks and a weekly epidemic research.

Implementation of Machine Learning Algorithm for Covid19 Detection Using X-Ray and Voice Dataset

Abstract

Ever since the deadly corona virus came into existence the life of the people has been shattered both in terms of health and economic crisis. Even today its various variants are creating havoc among the people. The traditional way of testing the disease is time consuming and is also not cost efficient due to the requirement of PEP kits. In this paper various Machine Learning (ML) techniques have been implemented based on the cough samples and chest x-ray images of the individuals. A hybrid model with GUI interface is designed to predict covid-19 and to perform the comparative analysis of sequential model and ResNet50 for image dataset, CNN with hyper parameter tuning and CNN for voice dataset. From the experimental analysis, ResNet50 performed better when compared to sequential model for image dataset and CNN with hyper parameter tuning performed better when compared with CNN model for voice dataset.

Prediction of Covid-19 and post Covid-19 patients with reduced feature extraction using Machine Learning Techniques

Abstract

Corona virus has spread the Covid-19 pandemic to the whole world resulting in the loss of about 3.8 million people. Nearly 156.5 million people have recovered from this disease by timely diagnostic using primary symptoms, which include lethargy caused by muscular weakness. Post Covid-19 patients also face myalgia, which is caused by the abnormal neural action potential. Electromyography (EMG) has been used for years to detect the neural communication and the action potential caused by it. Biomedical experts prefer EMG over other methods due to its ability to capture and conserve the data which helps in detecting major muscular disorders. This paper depicts multiple approaches to diagnose current Covid-19 patients or post Covid-19 patients using the EMG data of lower limb using Machine Learning. These approaches vary from each other in the form of the information conserved in the training data. The proposed method achieves the highest accuracy of 93.8% along with increasing the computational efficiency, as compared to the conventional methods. The dataset used is a publically available dataset, provided by University of California, by the name of Irvine (UCI) EMG lower limb dataset.

Machine Learning-Based Prediction & Analysis of COVID-19 using Clinical Data

Abstract

The novel corona virus (COVID-19), was initially seen in some cities of China in Dec 2019 and then spread exponentially in the entire world and converted into the worldwide pandemic. It rapidly influences and affect day to day life of everybody and slow down

economy maximum countries. An immediate requirement raised to detect the positive cases on starting stage and some method to stop further spread. Radiology images have played very important role for detecting COVID-19 and it was found that these images contain very important data which is very much effective in proper diagnosis and treatment. This all creates a requirement of machine learning based artificial intelligent system to detect and further treatment of COVID-19 using X-Ray and CT images and other similar data available. Machine learning based artificial intelligent system can assist and big help for medical staff during diagnoses of COVID-19. This will also be very helpful and fill the gap of shortage of medical staff in interior towns worldwide. As we have seen that COVID-19 virus spread so fast and impact millions of patients in very short time. This creates the requirement of some computerized system that will help in diagnoses and speedy recovery of patients. One another main test which people were using was RT-PCR for detection of COVID-19 but because of many false negative results and time taken in process we need one customized Machine learning based artificial intelligent system that makes use CT images. The proposed system COVID-Rational (COVID-R) is really helpful for early detection of COVID-19 by using classification technique with supervised learning algorithms like random forest and support vector machine (SVM). We have achieved good performance assessment with accuracy of 90.2% for early detection of COVID-19 with our proposed system COVID-R.