Guest editorial

Special issue (part 1) on computer-aided learning and analysis for COVID-19 disease

Singh *et al.* (2020) developed a novel HPSOSCA model based on PSO and SCA for the prediction of COVID-19 disease. The convergence rate of the proposed model is too high as compared to the literature. It also produces a better accuracy in a computationally efficient fashion. The obtained outputs are as follows: accuracy (88.63%), sensitivity (87.23%), specificity (89.02%), precision (69.49%), recall (87.23%), fmeasure (77.36%), Gmean (88.12%), Tp (41), Tn (146), Fb (18) and Fn (06). The recommendations to reduce disease outbreaks are as follow: to control this epidemic in various regions, it is important to appropriately manage patients suspected of having the disease, immediately identify and isolate the source of infection, cut off the transmission route and prevent viral transmission from these potential patients or virus carriers.

Jeet and Kang (2020) developed a novel approach that shows the effectiveness of Blockchain technology with modification of patients' data without his/her will, management of patient profile with latest data, and elimination of any type of miscommunication between the specialists.

Gomathi *et al.* (2020) designed an approach to track the cases particularly in India and might help researchers in the future to develop vaccines. Researchers across the world are testing different medications to cure COVID; however, it is still being tested in various labs. This paper highlights and deploys the concept of AutoML to analyze the data and to find the best algorithm to predict the disease. Appropriate tables, figures and explanations are provided.

Shabaz and Garg (2021) found that on the parameters such as AUROC and precision, SLP performs better. The AUROC value of SLP is 0.9805 and lies in between the standard value of 0.5 and 1 and precision value is 0.76.

Nair *et al.* (2021) proposed the model DarkCovidNet to provide correct binary classification diagnostics (COVID vs no detection) and multi-class (COVID vs no results vs pneumonia) classification. The implemented model computed the average precision for the binary and multi-class classification of 98.46% and 91.352%, respectively, and an average accuracy of 98.97% and 87.868%. The DarkNet model was used in this research as a classifier for a real-time object detection method only once. A total of 17 convolutionary layers and different filters on each layer have been implemented. This platform can be used by the

radiologists to verify their initial application screening and can also be used for screening patients through the cloud.

Bhangu *et al.* (2021) analyzed the COVID-19 using the auto-regressive integrated moving average (ARIMA) model and also seasonal ARIMA s with exogenous regressor (SARIMAX) and optimized to achieve better results.

Chauhan *et al.* (2021) study revealed that most relevant predictors for COVID-19 diagnosis are sob severity, cough severity, sob presence, cough presence, fatigue and number of days since symptom onset.

Churi *et al.* (2021) tested the 594 samples of students (from India and Turkey country) have been taken into considerations, and through statistical measures, the results were analyzed. The set of four research questions comprising of effect of study on COVID-19 pandemic, perception of learning online in COVID-19 pandemic, perception of different genders in learning online and perception of Indians over Turkan students in learning online were analyzed through statistical measures such as mean, standard deviation and so on.

Rajendran *et al.* (2021) examined the rapid answers in the medical imaging community toward COVID-19 (empowered by AI). For example, the acquisition of AI-empowered images will significantly assist automate the scanning process and reshape the procedure as well. AI, too, may improve the quality of the job by correctly delineating X-ray and CT image infections, promoting subsequent infections, quantification. In addition, computer-aided platforms support radiologists make medical choices, i.e. for illness tracking, diagnosis and prognosis.

Singh and Kaur (2021) integrated to strengthen COVID-19 patient prediction. A delay-sensitive efficient framework for the prediction of COVID-19 at an early stage is proposed. A novel similarity measure-based random forest classifier is proposed to increase the efficiency of the framework.

Kumar *et al.* (2021) proposed a new architecture for detecting COVID-19 symptoms from patient computed tomography scan images.

Ch *et al.* (2021) summarized and give an overview of the present preclinical research and clinical trials of potential candidates for COVID-19 treatments and vaccines.

Godavarthi (2021) presented a finetuned ALBERT-based QA system in association with Best Match25 (Okapi BM25) ranking function and its variant BM25L for context retrieval and provided high scores in benchmark data sets such as SQuAD for answers related to COVID-19 questions. In this context, this paper has built a QA system, pretrained on SQuAD and finetuned it on CORD-19 data to retrieve answers related to COVID-19 questions by extracting semantically relevant information related to the question.

Bhushan (2021) presented an approach to reduce the computer crimes which are increasing at a high rate, and it should be controlled and managed to maintain the platform. Cyberspace on the other hand can be discussed as the space where all internet-related activities are taking place and cyberlaw regulates. The paper will throw light on the impact of internet on the COVID-19 pandemic.

Sharma *et al.* (2021) found a voice activity detection detector based on a report provided by a K-mean algorithm that permits sliding window detection of voice and noise.

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However, first, it needs an initial detection pause. The machine initialized by the algorithm will work on health-care infrastructure and provides a platform for health-care professionals to detect the clear voice of patients.

Godara *et al.* (2021) compared the performance of five different classifiers – support vector machine, naïve Bayes classifier, decision tree classifier, AdaBoost classifier and K-nearest neighbor on the Twitter data set.

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