Retraction

Retraction: Simulation of Real-time Medicine suggestion box for COVID Screening (J. Phys.: Conf. Ser. 2040 012015)

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This article has been retracted by IOP Publishing following an allegation that this article contains tortured phrases.

IOP Publishing has investigated in line with the COPE guidelines, and agrees the article contains a number of tortured phrases and nonsensical sentences that feature throughout the paper, to the extent that the article makes very little sense.

The evidence gathered by IOP Publishing to date, combined with the lack of author response, considerably reduces confidence in the work to the extent that IOP Publishing has made the decision to retract the work. We would welcome receiving their account of events.

IOP Publishing wishes to credit the PubPeer commenters for bringing the issue to our attention.

The authors neither agree nor disagree to this retraction.

[1] J Vijay et al 2021 J. Phys.: Conf. Ser. 2040 012015

[2] Cabanac G, Labbe C, Magazinov A, 2021, Tortured phrases: A dubious writing style emerging in science. Evidence of critical issues affecting established journals, arXiv:2107.06751v1

[3] https://pubpeer.com/publications/F1480A4B36F7739BA46ACAE58361F3

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Simulation of Real-time Medicine suggestion box for COVID Screening

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Abstract—Technology advancements have a rapid effect on every field of life, be it medical field or any other field. Artificial intelligence has shown the promising results in health care through its decision making by analysing the data. COVID-19 has affected more than 100 countries in a matter of no time. People all over the world are vulnerable to its consequences in future. It is imperative to develop a control system that will detect the coronavirus. One of the solutions to control the current havoc can be the diagnosis of disease with the help of various AI tools. The proposed system contains textual data analysis as well as real time physiological data analysis concept. The embedded platform reads the body temperature and heart rate of the patients. The patient is automatically induced to attend the pre-screening survey designed using the software GUI that collects most of the information on symptoms persists. A COVID-19 dataset is collected from publicly available websites. The read survey values and sensor values are pre-processed and extracted the unique features present in it. Those unique parameters are compared with the database to produce the output showing COVID positive status or Negative status and immediate medicine suggestions for them using the global collective medicine suggestions box.

Keywords—Machine learning, COVID-19, Medical analysis, artificial intelligence, medication suggestion system, Covid datasets, Neural networks

1. INTRODUCTION

1.1 COVID-19 Virus

The novel corona virus is or the COVID -19 started spreading from the city of china, Wuhan. The virus directly hits the lungs of the peoples. The infection of Virus is identified with certain symptoms that starts from high fever, body pain, cough, head ache and cold. The virus transit from one person to another through air as medium.[1] The capacity of transit rate decreases if peoples started maintaining the social distance. On the other hand, many research works are undergoing taking COVID as serious infection, the earliest diagnosis procedure is under research. The global diagnostic procedures followed in various countries are considered for the research analysis. In the mean while precaution measure are taken by the government to find the earliest detection of Covid infection and to reduce the infection transit rate as soon as possible.
1.2 Input Data

[2] The ultimate input for the diagnosis of COVID infection starts from the physiological data collected from the patients in the form of blood pressure, temperature etc. Apart from physiological data, CT Scanning, X-rays and MRI scans are the next foremost options to find out the infection ratio and to find out the infected organs too. Fever as the initial symptom, the pneumonia cases are initially screened through the X-rays only.

1.3 Datasets

[3] The Scientific computing team and Engineering research works focused on finding the methodology that predict the corona virus to the earliest. For the analysis of COVID research work, many publicly available datasets are considered. In the current scenario, publicly available open source datasets are helpful to them machine learning team to predict the transit and analysis of Coronavirus. Data science act as peculiar role in finding out the most impacted factor for the fast transit of Virus.

![Figure 1. Various types of Data inputs available for COVID research](image)

The presented work is focused on such kind of early prediction framework using machine learning algorithms. The screening model is developed with the oral survey work, and the physiological data measurement. Heart rate and temperature is considered as the physiological data. Based on the oral survey and real time health status, the maximum correlated COVID symptoms are predicted. Based on the classified results, the medicine suggestion is provided.

2. LITERATURE SURVEY

[1] Sohan et al., (2020) Research article cover various types of datasets accessible for COVID-19 forecast. The examination zeroed in on the assortment of top datasets that were considered for logical investigation of COVID-19. The test dataset covers blood tests, X-beams, Scan reports, the printed dataset of tweets, text report of the patients, and so forth. The gathered examples are extensively named positive test tests, negative test tests, and both joined dataset. The people group joins are useful for scientists for reference to proper examination of the dataset.

[2] Vaid et al., (2020) led research work on COVID-19 location through the man-made consciousness strategy. During their work, (April 23, 2020), 2.7 million individuals were affirmed with the weak infection. Over 0.9 million individuals have passed on and 0.75 million patients recuperated totally from the boundless Coronavirus. They have used chest X-beam hints of patients and fostered a profound convolution neural organization (CNN) to recognize the irregularities present in the constructions. They moved toward the exchange learning strategy to identify profoundly covered up follows utilizing radiographs of the patients. The proposed CNN model scores 96.3% precision and deficiency of 0.151 through parallel cross-entropy.
Narinder et al., (2020) expressed in their exploration work on scourge investigation utilizing a dataset gathered from Johns-Hopkins. The datasets utilized for the examination are gathered as time-arrangement synopsis tables in CSV design containing the itemized construction of the refreshed status of COVID-19 affirmed cases, demise rate, and recuperation pace of the country. They fostered a novel model utilizing polynomial relapse to identify the situation with the quick spreading infection. The proposed procedure likewise contrasted and Support vector relapse (SVR), profound neural organizations (DNN), and Long-momentary memory in counterfeit neural organizations (LSTM). Reformist outcomes are showing least RMSE in the Polynomial relapse model.

M. J. Horry et al., (2020) assessed a VGG19 classifier model for expectation of COVID-19 utilizing CT Lung pictures of tainted patients. The solitary restriction past the identification interaction is the constraints persevering in the accessibility of ground truth information. The openly accessible pictures are poor in quality to deliver novel designs. The model created is constantly centered around diminishing the bogus positive conclusion. People and their contact follows are investigated for anticipating the feelings of anxiety and other clinical commitments produced by COVID-19.

Shuo Wang et al., (2020) assessed a Random Deep learning model utilizing a CT-EGFR dataset containing 5372 patients' unique records gathered from 7 urban communities. The preparation set comprises of 4106 patients with cellular breakdown in the lungs with EGFR (epidermal development factor receptor) transformation status. The assessed model uses DenseNet121 for the programmed division of the lungs. The prepared picture dataset is an example perceived and the proposed exactness scores around 80% for the Deep learning strategy in correlation with Random Deep learning techniques.

Zhang et al., (2020) led an examination and execution of computerized recognition on COVID-19 pneumonia utilizing profound learning instruments. Ultra man-made reasoning instruments are executed to precisely assess viral pneumonia that incorporates multi-center, respective GGOs where the normal contamination being the dorsal section of the correct lower flap of the lungs. The examination uncovers that confinement of irresistible districts that are needed for COVID-19 recognition as well as gives further help to the doctors in fostering the treatment plan.

Tahmina Z et al., (2020) Evaluated profound learning standards utilizing classifier models, for example, VGG16, ResNet50, and EfficientNetB with pre-prepared CT-Chest pictures of COVID-19 contaminated patients. The generative ill-disposed organization based framework is assessed. EfficientNetB0 accomplishes 96% precision in the forecast of the three sorted illnesses like pneumonia, COVID-19, and Normal. For planning, the expectation procedures that should be featured, inclination class enactment is utilized. Also, these procedures help envision the influenced districts of the lungs during infection movement and seriousness stages.

Ko H et al. (2020) developed an FCNet profound learning model to adequately analyze COVID-19 pneumonia in a brief period. The identification cycle with ResNet50 consolidated gives a superb analytic exhibition. They embraced an AI-based picture preparing grouping utilizing the Convolution neural organization system. The framework engineering is finished utilizing the openly accessible COVID-19 dataset set up by SIRM. Albeit the freely accessible datasets are useful for the forecast cycle in the underlying stages, the quickly refreshed experiments and the passing pace of patients with various physiological commitments made conflicting outcomes on the expectation interaction. The datasets considered are CT sweeps of individuals
contaminated by cellular breakdown in the lungs, pneumonia, and lung pictures of ordinary patients.

3. SYSTEM DESIGN
The problem statement behind the system is considering the dataset alone making the decision in the previous works impact the accuracy. Hence to improve the accuracy a secondary decision is required. The proposed system focused on implementing hybrid decision model where the final classification depends on the previous decision model. The system design is implemented using MATLAB work environment. Signal processing toolbox is used to filter out the noise and handle the signal data in a proper way.

4. DESIGN METHODOLOGY

4.1 Input Dataset
The input dataset is derived in the form of two methods.
• Through COVID screening survey
• Using Physiological data (Heart Rate, Temperature)
These two datasets are used as the primary data for the analysis. The preprocessing of the consists of applying the signal filter using Wavelet transform. The haar wavelet transform is used to determine the frequency of occurrence of the input data. The frequency constant is randomized before fetching it into the analysis module.

4.2 Analysis Module
The analysis module consists of two levels of algorithm that is used to produce the cascaded results. The first module is used to make a closed loop auto regression network that adopt the input data compare the same with the input as the feedback and have the optimized data. The MARX module is fetched with the COVID Survey data. The cross validation is done using the manual analysis of the Survey data. The secondary analysis is done using the Pattern network designed using Bayesian regularization algorithm (BR). The proposed BR model is one of the effective optimized technique that adopts the back propagation model. The physiological data is split into training data of 70%, testing data of 15% and Validation data of 15%. The novel Hybrid COVIDNET is created using the cascaded decision model of NARX network and BR-pattern network. These two decisions are combined in final cascaded decision of COVID symptoms present or not. In case of symptoms the medications are updated in the warning dialog box as shown in SEC V.
5. RESULTS AND DISCUSSIONS

Fig 3. Shows the Configured neural network toolbox with training function as Bayesian regularization (trainbr). The performance measure is done using mean square error (MSE). The given input is compared with the training dataset using the 10 hidden layers defined in the nntraintool. The maximum number of epochs allowed are 1000. Depends on the complexity of the input, the iterations or epochs are limited.

(Fig 4.) Based on the given inputs and the expected targets the error rate is being calculated as Error = Target - output. Lesser the error value, then fairer the performance would be. The proposed model achieved the error rate of -0.00617 that act as the negligible value.

![Error Histogram plot](image)
5.1 Notifications

Figure 5. Message Notification on COVID positive & Negative

Fig 5. Shows the message box showing the notification on COVID positive status and negative status with the related suggestion provided by the screening algorithm.

5.2 Quantitative Measurements

Figure 6 algorithm improvised with the tuning of data inputs

Since the proposed algorithm is derived with the help of two hybrid combination of the algorithms, the accuracy is likely to be 71.8%. The algorithm need to be further improvised with the tuning of data inputs too

6. CONCLUSION

COVID 19 has become one of the serious infection all over the world that leads to global pandemic. One of the foremost step required by the government is to control the transit of the disease and to detect the COVID infections at the earliest. Keeping those things as a motivation factor, the proposed system is developed. The system is focused on implementing a basic screening test of COVID infections and the real time physiological data analysis module using the Hybrid COVIDNET that might be helpful in detecting the infection by clinical screening and analysis. The system is further improved by implementing the same using more real time data and more likely screening questions using the word cloud from the web. The system achieved the error rate of -0.00617. Using deep learning algorithms the system could be further developed towards high accuracy.

REFERENCES

[1] Sohan, M.F. (2020). So You Need Datasets for Your COVID-19 Detection Research Using Machine Learning? ArXiv, abs/2008.05906.
[2] Vaid, S., Kalantar, R. & Bhandari, M. Deep learning COVID-19 detection bias: accuracy through artificial intelligence. International Orthopaedics (SICOT) 44, 1539–1542 (2020). https://doi.org/10.1007/s00264-020-04609-2

[3] Narinder Singh Punn, Sanjay Kumar Sonbhadra, Sonali Agarwal. COVID-19 Epidemic Analysis using Machine Learning and Deep Learning Algorithms. medRxiv 2020.04.08.20057679; doi: https://doi.org/10.1101/2020.04.08.20057679

[4] Amutha devi, Gayathri Monicka J. “Emerging bio-medical applications and open research challenges in cognitive internet of things (CIOT)” International Journal of Pharmacy and Technology” Dec-2016 Vol. 8 Issue No.4 5049- 5054

[5] Shuo Wang, Yunfei Zha, Weimin Li, Meng Siu, Meiyun Wang, Xiaoming Qia, Hongjuan Li, He Yu, Wei Gong, Yan Bai, Li Li, Xiongbei Zhu, Liwu Wang, Jie Tian A Fully Automatic Deep Learning System for COVID-19 Diagnostic and Prognostic Analysis European Respiratory Journal 2020; DOI: 10.1183/13993003.00775-2020

[6] Zhang, Hai-tao et al. 2020 Automated detection and quantification of COVID-19 pneumonia: CT imaging analysis by a deep learning-based software, European Journal of Nuclear Medicine and Molecular Imaging. 47. 10.1007/s00259-020-04953-1.

[7] Amutha devi, Gayathri Monicka J. “Development of fuzzy approach to predict the fetus safety and growth using AFI” Journal of super computing” Dec-2019 DOI 10.1007/s11227-019-03099-8

[8] Tamina COVID-19 detection and disease progression visualization: Deep learning on chest X-rays for classification and coarse localization Tahmina Zebin1 • Shahadate Rezvy2 (2020)

[9] Kumar, R., Nagpal, S. & Kaushik, S. et al. COVID-19 diagnostic approaches: different roads to the same destination. VirusDis. 31, 97–105 (2020). https://doi.org/10.1007/s13337-020-00599-7

[10] Ghafoor, Kayhan (2020): COVID-19 Pneumonia Level Detection using Deep Learning Algorithm. TechRxiv. Preprint. https://doi.org/10.36227/techrxiv.12619193.v1

[11] D. Vijendra Babu et al. 2020 Raspberry Pi based Real Time Vehicle Accident Intimation with Alert Message and Image Capture, IOP Conference Series: Materials Science and Engineering, Vol.993 012081

[12] D. Vijendra Babu et al. 2020 Remote Monitoring of COMA Patients Using Zigbee, IOP Conference Series: Materials Science and Engineering, Vol.993 012082

[13] D. Vijendra Babu et al. 2020 Line follower Robot & Obstacle detection using PID Controller, AIP Conference Proceedings, Vol. 2271,030005.

[14] D. Vijendra Babu et al. 2020 Intelligent Street lightning using Traffic & ambient lightning, AIP Conference Proceedings, Vol. 2271,030008.

[15] V Chandrasekar et al 2021 Designing of Tele-Health Smart Sensor Device to assist Home care Staff, Journal of Physics: Conference Series, Vol.1964, 062106
[16] R.Prabha et al 2021 A Novel Computational Rough Set based Feature Extraction for Heart Disease Analysis, First International Conference on Computing, Communication & Control System.