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Covid 19 Treatment through Advanced Artificial Neural Network Algorithm

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Abstract: The development of computer science has been phenomenal. This computer development is exerting its dominance in all fields. In today's world, the need for computer usage is increasing. All departments are computerized in some way for their use. Every day in human life new diseases is attacking man. Covid19 disease confined all the people inside the house. This impacted the economy of all the people and affected the development of all sectors. Due to this, with the development of the computer industry, this research paper aims to cure the effect of this disease and detect its functions easily. In this we find solutions using Advanced Artificial neural network Algorithm applications.

Key words: Artificial Neural Networks, Age factor, Oxygen Level, Wave, Neurons

Introduction: Covid-19 disease affects man in many dimensions, the second wave of the disease caused many casualties. Many of its transformed states are villains that have debilitated humans. Its transformation has to be continuously monitored. At these situation covid 19 transformations of the disease should be accurately detected and cured. We have come up with a solution using the rapidly developing deep learning technology to accurately diagnose the impact of this disease. Image processing technology is now meeting our needs in many ways. The influence of covid 19 can be easily traced with the diagrams of the areas it affects. With the help of this image and Artificial Neural Network technology we can easily and accurately diagnose the diseased areas of the disease.

Review of Literature

Covid 19 virus is a highly spread contagious disease [1][2]. The effects of Covid 19 disease can be recognized by the area with its lungs damage photography [3][4]. It can be seen from the number of data that it is spreading fast [5][6]. Artificial Neural Networks include artificial neurons **(**units**).** These units are arranged in a continuous of layers that together constitute the full Artificial Neural Network in a system [7]. A layer can have millions of units as this depends on how the complex neural networks will be needed to learn the hidden patterns in the data. Artificial Neural Network has three layers first one input layer second one output layer and third one hidden layer [8] [9]. The input layer collect data from the covid19 disease dataset [10] [11] which the neural network needs to analyse about. In this data passes through one or multiple hidden layers [12] that convey the input into covid 19 dataset that is valuable for the output layer.

Activation functions used in a neural network to compute the inputs and biases, which is in turn used to decide whether a neuron can be activated or not. It manipulates the presented data and produces an output for the neural network that contains the parameters in the data. In the summation, all features are multiplied by their parameters. This summed function is executed over an Activation function. The output from this neuron is the parameter value with supplied as input to the output layer [13].

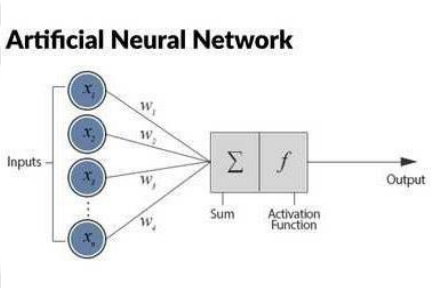

Figure – 1 Artificial Neural Network

Finally, the output layer provides an output in the form of a response of the Artificial Neural Networks to input data provided. In the majority of neural networks, units are interconnected from one layer to another. Each of these connections has weights that determine the influence of one unit on another unit. As the data transfers from one unit to another, the neural network learns more and more about the data which eventually results in an output from the output layer.

Proposed Methodology: The impact of covid-19is increasing day by day and its transformations are the things to watch out for.

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Figure -2 Modified Artificial Neural

Network Processes Flow

Here are some things to watch out for four types.

1.Age factor

2.Existing Disease

3.Covid 19 affected status

4.Oxygen Level

Level 1

The first step we should notice about the people who are affected is their age. Covid 19 disease easily attacks people over the age of 45 and above years. The effect is less in the younger, so age is a factor to consider

Age= ∑ AD or ∑YO or ∑ EL Eq 1 →

AD ⟹ Adults

YO ⟹ Younger

EL ⟹ Elder

Level 2

The second step is to take into account the impact of the previous diseases of the patients who are going to predict Covid 19.

Age= ∑ CA or ∑HE or ∑ DI or ∑LE or ∑NOR Eq 2 →

CA ⟹ Cancer

HE ⟹ Heart disease

DI ⟹ Diabetic

LE ⟹ Lever & Kidney disease

NOR ⟹ Normal

Level 3

The third stage we should consider is the impact of Covid 19. CT scan photo it shows the impact of the disease of the patient with Covid 19. Based on its nature, it can be divided into three types

Age= ∑ MI or ∑SE or ∑ CR Eq 3 →

MI ⟹ Mild

SE ⟹ Severe

CR ⟹ Critical

Normal Stage Mild Stage Moderate Stage Critical Stage

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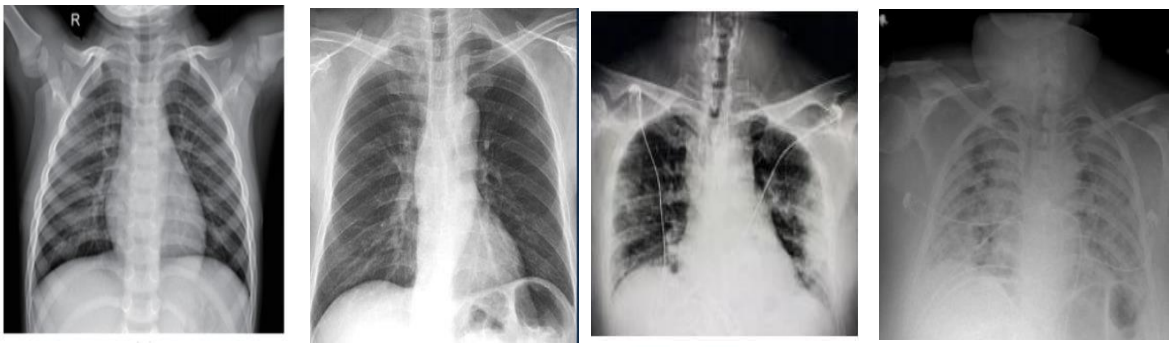

Figure -3 Covid-19 stages

Level 4

Fourth Step Covid 19 Monitoring the patient's oxygen level is very important. A patient's oxygen level determines the type of therapy a covid 19 patient needs. Monitoring of this oxygen level is essential; it helps to decide whether or not to treat it intensive care.

Age= ∑ VL or ∑ LO or ∑ NO Eq 4 →

VL ⟹ Very Low

LO ⟹ Low

NO ⟹ Normal

Monitoring of oxygen level is very important and it is very important to monitor the covid 19patient oxygen level. Oxygen levels are divided into following categories

Level	Pulse Oximeter	Problem
Healthy Level	95 – 100%	Normal
Treatment need	80 – 95%	Visual and Cognitive changes
	67%	Blue discoloration of your nail beds, skin, and mucus membranes.
	Low	Respiratory failure

Table-1 Oxygen Level

Finally, we can use these four categories to find out the nature of Covid 19 patient disease. By identifying the patient's condition at each stage, appropriate treatments can be developed.

For 1 to 3 (AD, YO, EL) Eq 5 →

For 1 to 5 (CA, HE, DI, LE, NOR) Eq 6 →

For 1 to 3 (MI, SE, CR) Eq 7 →

For 1 to 3 (VL, LO, NO) Eq 8 →

Finally, we got result in

OU = AD+CA+MI+VL Eq 9 →

---------- Eq 10 →

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OU= EL +LE+CR+NO Eq 134 →

OU= EL +NOR+CR+NO Eq 135 →

Covid 19 record the patient's condition, age of the victim and changes in the affected lungs. Apart from this, not only his old diseases but also the required oxygen level should be calculated. Through these actions, the stage of Covid 19 patient disease attack can be easily detected and the necessary treatment can be given. Various Covid 19 stages and corresponding treatment can be done by using this method.

Results & Discussion: Advanced artificial neural network algorithm makes it easy to get accurate results. By using these methods, you can easily decide what kind of treatment to give. In this case, the patient's condition can be easily diagnosed and the necessary treatment can be given by using a photograph of the lungs of the patient affected by Covid 19. This algorithm provides better result than the FNN (Feedforward Neural Networks algorithms), MACO-CNN (Modified Deep Learning Algorithm), MDLA (Modified Deep Learning Algorithm). This algorithm provides accurate results compared to other existing algorithms. Not only that, the algorithm also provides 135 types of results, thereby helping to the need for essential treatment. No other algorithm has provided such results and this is possible only with this algorithm. According to these results, the necessary emergency treatments can be given immediately. In this advanced artificial neural network algorithm, this table is compared with only Covid 19 patient lungs status. Apart from this, functions and summations methods are used to accurate measurements of its results.

TECHNIQUES	ACCURACY (%)	ERROR (%)
FNN	0.81	9
MACO-CNN	0.91	8
MDLA	0.95	5
AANN	0.97	3

Table-2 Covid 19 result comparison

This implementation is best in its multiple result when compared to existing algorithms. Using these functions, we have a high percentage of accurate results. These functions have decreased the percentage of errors. Most importantly the accurate result we got through this method. The number of results obtained in it further gives its quality.

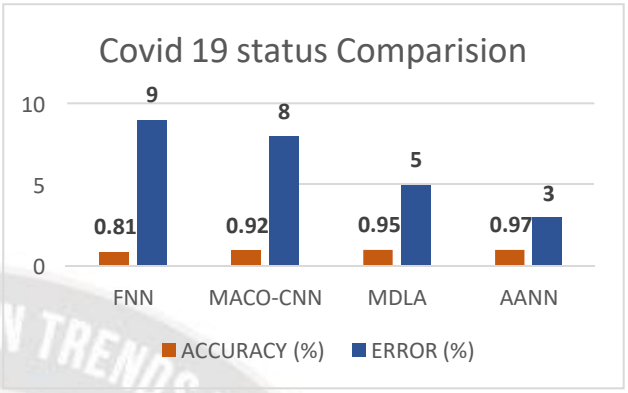

Figure -4 Covid 19 Result comparision for Existing algorithm

Conclusion: Covid 19 disease affects people of all ages, it is very important to monitor the Covid 19 performance of the elderly. The second wave of this disease is the cause of most people's death. In this, from young to old people were affected and caused loss of life. Because it is important to find out the performance of this, we say this change has been made by modified artificial neural network algorithm. Each stage of this disease can be easily diagnosed with this algorithm and the necessary treatment can be treated. Based on this method, the patient's disease performance can be accurately diagnosed and the treatment needed can be provided promptly. Through this algorithm, it is easy to identify who needs urgent treatment and seek emergency help. The information obtained in this manner is accurate and easily traceable for covid 19 patient situation.

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