

Review of: "Generative Artificial Intelligence Using Machine Learning on Wireless Ad Hoc Networks"

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Potential competing interests: No potential competing interests to declare.

The author refers to neural network models (such as Multilayer Perceptron and Radial Basis Function) as processes. Artificial neural networks (ANNs) are not processes. They are models of physical neural network systems that are implemented in software as "objects". An example of a process is the training procedure for an ANN. Another example of a process is the forward propagation procedure in MLPs that calculates the output value(s) given the input values.

The basic service set identifier (BSSID), which is predicted at the output of the ANNs (in Figs. 1, 7, 8), is a 48-bit label (which follows MAC address conventions) that identifies the service provided by an access point (AP) to a set of devices that connect to the AP.

The author should provide a clearer explanation of how the BSSID is normalized and encoded in the output of the ANN. Also, it is not clear to me why the author relates the 13 parameters (shown in Table 1) to this BSSID. Does he want to use the ANN to estimate the access point that best matches the given values of these 13 parameters?

Underneath Fig. 5, the sentence reads: "Compared to the NN model, the MLP neural network is characterized by several inputs, one or two levels of hidden layers, two or four levels of the quantity of metrics in the middle layer, and a single output." First, the MLP is a NN model, so the expression "Compared to the NN model, the MLP neural network is ..." is confusing, since the reader expects the comparison of the MLP with another NN model which is not specified. Also, an MLP suffices to have only one hidden layer with an appropriate width, but it may also have two or more than two hidden layers (i.e., two is not the maximum number of hidden layers that it may have). Secondly, the "...two or four levels of the quantity of metrics in the middle layer..." is not clear at all. The reader seeks some meaning in these metrics, then the next sentence states that the nodes in the center (I believe it refers to the nodes in the hidden layers) represent a set of novel metrics with high dimensions. Please note that the nodes in the hidden layers carry aggregated information, but they cannot be attributed to specific metrics.

The sentence "In Table 3, the estimation of the metrics is observed at the neural network level." is totally confusing. I believe that Table 3 shows the weights (i.e., connection strengths) of a trained MLP (that has 13 inputs, 2 hidden layers of 4 nodes each, and an output layer of a single node, as Fig. 7 also shows).

The author should specify the dataset used for training the MLP and discuss its significance in the context of the study. Also, since the author refers to these weights as "metrics," he should explain what they measure.

Under Table 3, the author states "In Table No. 3, we can observe the estimated values for the issues_with_SNR metric in

hidden layer one and the number of elements for each of the layers." I cannot follow this. The hidden layer does not provide estimations for a particular input parameter, but each node in the first hidden layer is affected simultaneously by all the input parameters.

In Table 4, the values in the middle column (labeled "Importance") - where did they come from?

I would state similar observations for "Experimental Test No. 2," regarding Tables 6 and 7.

In the "Discussion" section, it is stated that the equation $y = 0.59 + 0.81 * x$ was used in order to generate a predicted value regarding the dependent variable, BSSID. Reading this, I understand that the variable "y" represents the BSSID. But then, what does the variable x represent? Also, the author should explain what the BSSID represents and how it is expressed. Is it different from the BSSID that I refer to a few lines above?