Name: Ahmed Ramy Abdelhamid

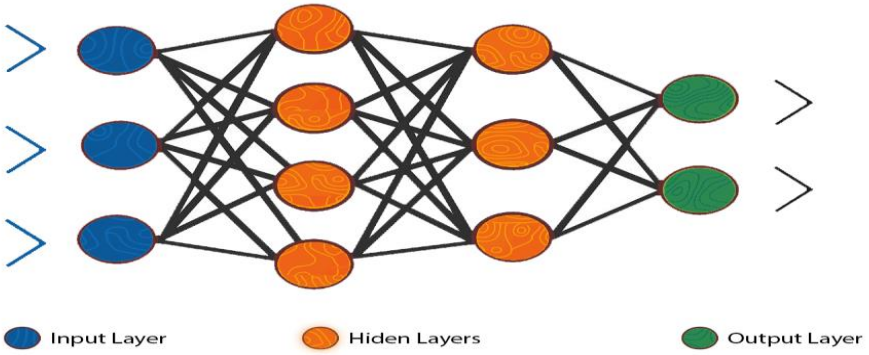
ID: 181532

Idea: Multilayer Perceptron

Multilayer Perceptron is a member of the Artificial Neural Network family known as MLP. It is a feedforward model that consists of at least three layers such as input layer, output layer, and at least one hidden layer. All the neurons in the hidden and the output layer are using a nonlinear activation function like Rectified Linear Unit (ReLU), hyperbolic tangent (tanh), etc. Unlike Single layer perceptron where it can only handle linear functions.

MLP uses a famous supervised learning method known as backpropagation to train the data. The main advantages of the Multilayer Perceptron is that it can distinguish between complex nonlinear data. In addition, it works efficiently with large inputs. However, the main disadvantage is that the MLP is time consuming since it is a fully connected network where each node is connected to the other.

Multilayer Perceptron has been used in various application, for example: during the pandemic of Covid 19 to predict the spread and the maximum number of patients across different areas in the world [1].



References:

- [1] Segota, S & Andelic, N & Lorencin, I & Mrzljak, V. (2020). Modeling the Spread of COVID-19 Infection Using a Multilayer Perceptron. https://downloads.hindawi.com/journals/cmmm/2020/5714714.pdf
- [2] Abdar, M & Yuwen, N. Y & Hung, J. H. (2017). Improving the Diagnosis of Liver Disease Using Multilayer Perceptron Neural Network and Boosted Decision Trees.https://link.springer.com/content/pdf/10.1007/s40846-017-0360-z.pdf
- [3] Akinlabi, S & Madushele, N & Adedji, P & Felix, I. (2019). Multilayer perceptron artificial neural network for the prediction of heating value of municipal solid waste. https://www.aimspress.com/fileOther/PDF/energy/energy-07-06-944.pdf