

# **DESIGN OF MULTILAYER PERCEPTRON NEURAL NETWORK FOR MENTAL TASK RECOGNITION**

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## **ABSTRACT**

BCI (Brain Computer Interface) represents a direct communication between the neuron action of brain and a computer system. The main aim of the BCI is to translate brain activity into commands for the computer. Electroencephalogram (EEG) is used to capture the brain electrical signals. It is highly difficult to convert these measured brain electrical signals into commands. The steps involved to convert are signal Pre-processing, Feature Extraction, Classification. The output from the above steps is used to control the computer. In this paper it is mainly concentrated on the feature classification. It is adopted Multi Layer Perceptron Neural Network (MLP) with Back propagation training, dataset collected from the BCI Competition III 2008. The proposed Neural Network consists of 10 units in the input layer and hidden layers and with the output layer of one unit. This network is trained with the given dataset and obtained a low Mean Square Error (MSE) of 0.342, which is very low when compared to other Neural Network architectures. This proposed method worked with 100% training and 74% testing accuracy.

**KEYWORDS:** Brain Computer Interface, Multi Layer Perceptron Neural Network.