Neural Networks Sessional

1. Write a MATLAB or Python program using perceptron net for AND function with bipolar inputs and targets. The convergence curves and the decision boundary lines are also shown.

2. Generate the XOR function using the McCulloch-Pitts neuron by writing an M-file or.py file. The convergence curves and the decision boundary lines are also shown.

3. Implement the SGD Method using Delta learning rule for following input-target sets. X_{Input} = [0 0 1; 0 1 1;1 0 1; 1 1 1], D_{Target} = [0; 0; 1; 1]

4. Compare the performance of SGD and the Batch method using the delta learning rule.

5. Write a MATLAB or Python program to recognize the image of digits. The input images are five-by-five pixel squares, which display five numbers from 1 to 5, as shown in Figure 1.

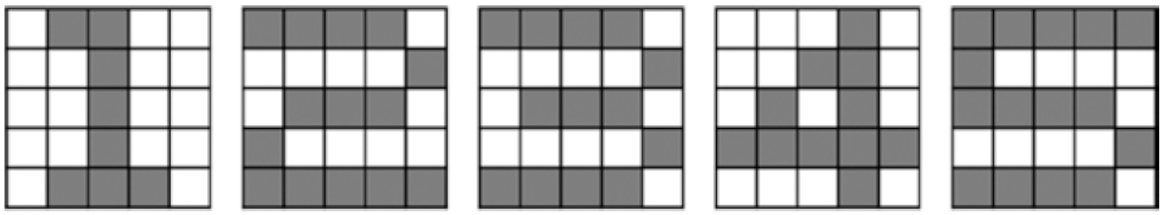
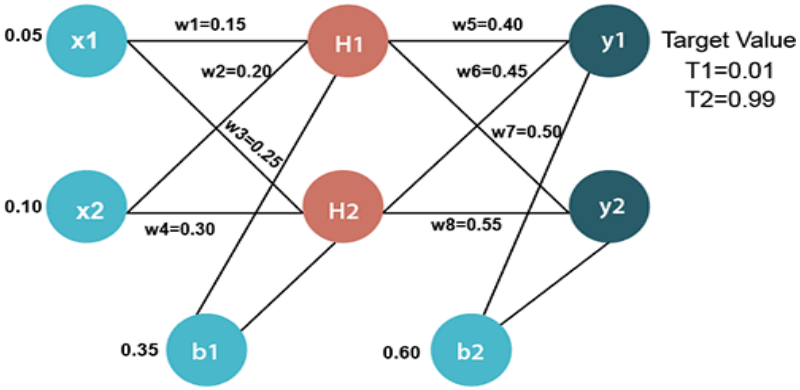


Figure 1 *Five-by-five pixel squares that display five numbers from 1 to 5*

6. Write a MATLAB or Python program to classify face/fruit/bird using Convolution Neural Network (CNN).

7. Consider an artificial neural network (ANN) with three layers given below. Write a MATLAB or Python program to learn this network using Back Propagation Network.



8. Write a MATLAB or Python program to recognize the numbers 1 to 4 from speech signal using artificial neural network (ANN).
9. Write a MATLAB or Python program to Purchase Classification Prediction using SVM.
10. Write a MATLAB or Python program to reduce dimensions of a dataset into a new coordinate system using PCA algorithm.