Ain Shams University Faculty of Computers and Information Sciences Scientific Computing Department



Character Recognition Project Report

Neural Networks Course

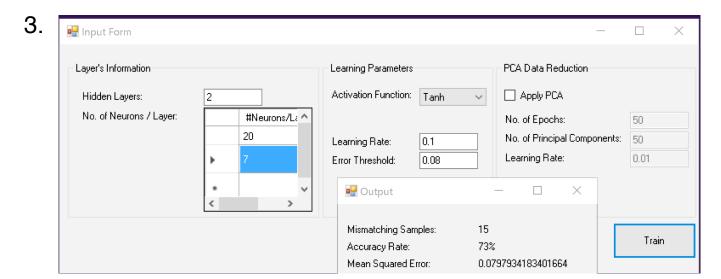
Presented by:

ندى علاء عبد الوهاب العواد اسلام مجدى سعيد حسن عمر معتز عبد الواحد احمد عطيه

Sample Runs:

1. 🖳 Input Form \times Layer's Information Learning Parameters PCA Data Reduction Hidden Layers: Activation Function: Sigmoid Apply PCA No. of Neurons / Layer: #Neurons/Layer No. of Epochs: 30 Slope: 30 No. of Principal Components: Leaming Rate: 0.1 Leaming Rate: 0.01 Error Threshold: 0.4 Output Mismatching Samples: 34 Train Accuracy Rate: 38% Mean Squared Error: 0.39882482012682

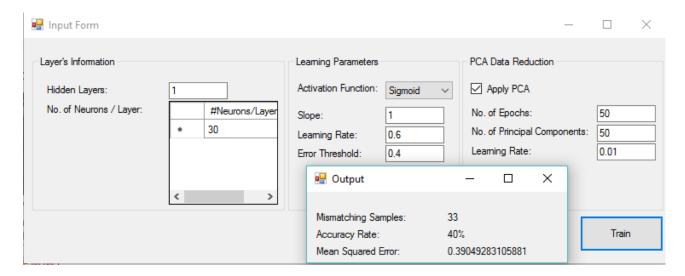
2. 🖳 Input Form Layer's Information Learning Parameters PCA Data Reduction Activation Function: Tanh Hidden Layers: ☑ Apply PCA No. of Neurons / Layer: #Neurons/La 🔨 No. of Epochs: 50 30 No. of Principal Components: Learning Rate: 0.1 Learning Rate: 0.01 Error Threshold: 0.6 Output Mismatching Samples: 33 Train Accuracy Rate: 40% 0.599818754007103 Mean Squared Error:



4. 🖳 Input Form Layer's Information Learning Parameters PCA Data Reduction Activation Function: Tanh Apply PCA Hidden Layers: No. of Neurons / Layer: #Neurons/Layer No. of Epochs: 30 No. of Principal Components: 50 0.1 Learning Rate: Learning Rate: 0.01 0.01 Error Threshold: 🖳 Output 11 Mismatching Samples: Train Accuracy Rate: 80%

Mean Squared Error: 0.00988458760593241 5. 🖳 Input Form Layer's Information Learning Parameters PCA Data Reduction Activation Function: Sigmoid ✓ Apply PCA Hidden Layers: No. of Neurons / Layer: #Neurons/Layer No. of Epochs: 50 Slope: 30 No. of Principal Components: Leaming Rate: 0.6 Leaming Rate: 0.01 Error Threshold: 0.4 X 🖳 Output Mismatching Samples: 33 Accuracy Rate: 40% Train 0.39049283105881 Mean Squared Error:

Best Run with PCA:



Best Run without PCA:

