Machine Learning Project Report: Neural Network Implementation on MNIST Dataset

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Abstract

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2.1 Neural Network Architecture

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3 Results

3.1 Training

3.2 Testing

3.2.1 Confusion Matrix

3.2.2 Accuracy

3.2.3 Prediction

3.3 Convolution

98.8% accuracy

3.3.1 Confusion Matrix

4 Analysis

5 Conclusion

5.1 Main Findings

5.2 Tools

5.2.1 Assistance

- ChatGPT

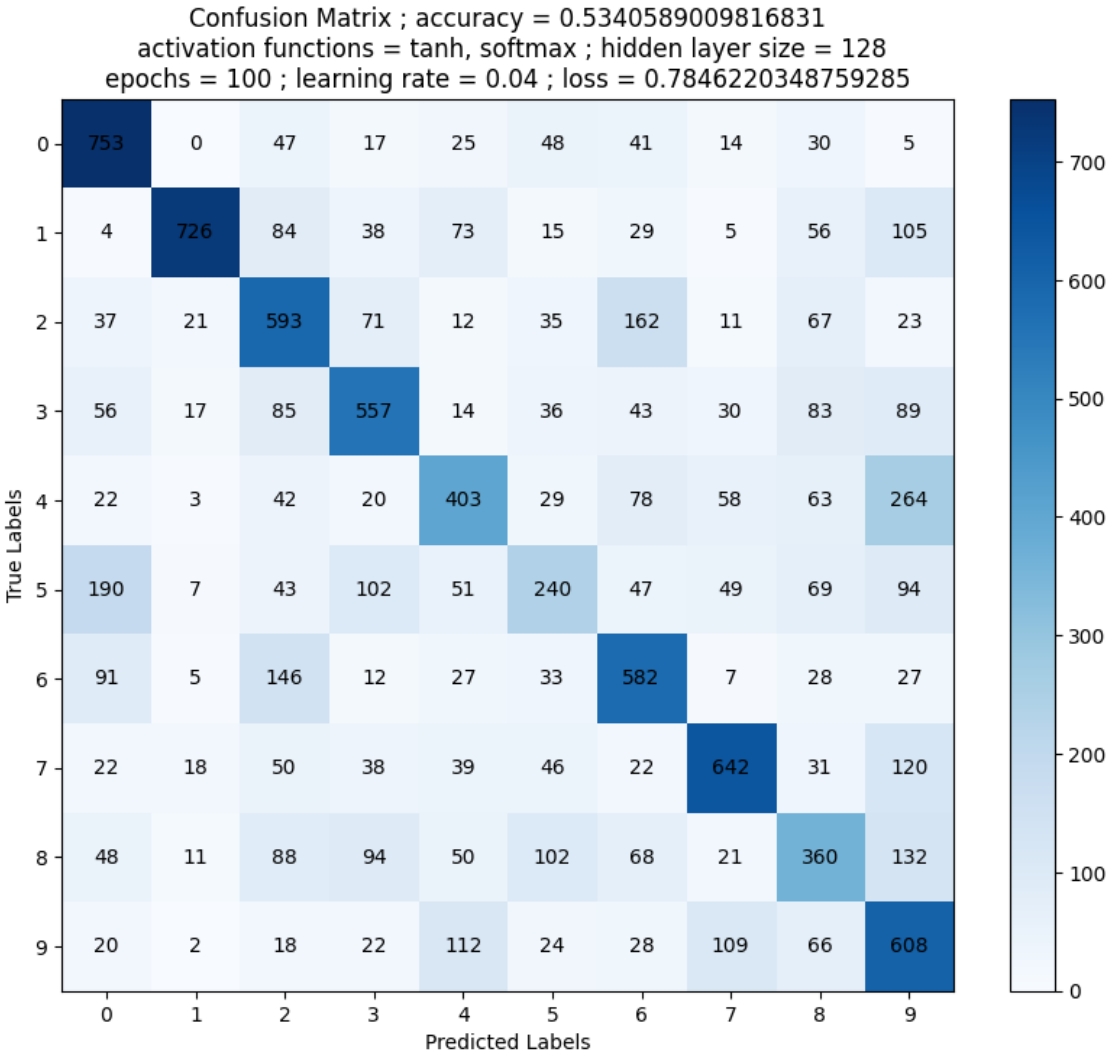

Figure 1: Confusion Matrix for tanh activation function, softmax output function, 1 hidden layer of 128 neurons, 100 epochs, 0.04 learning rate, and 0.7846220348759285 loss.

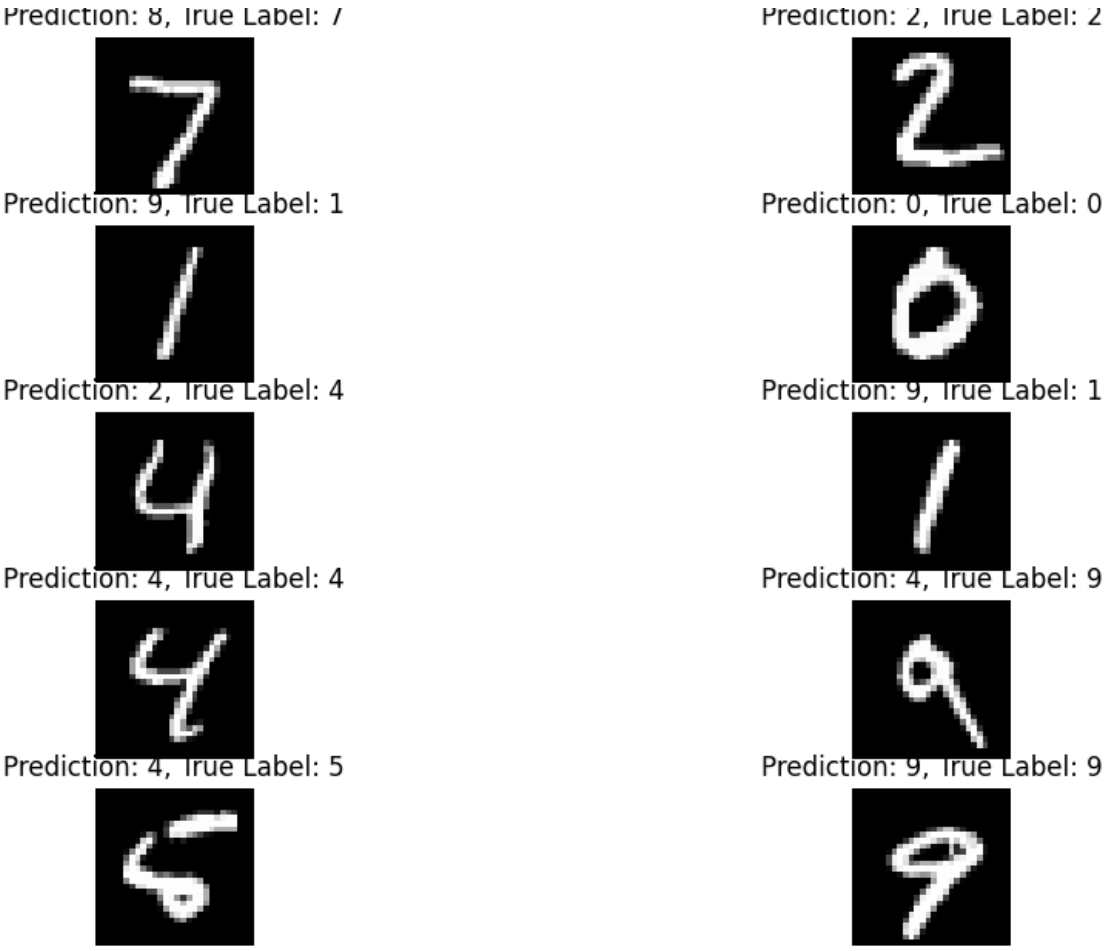

Figure 2: Prediction

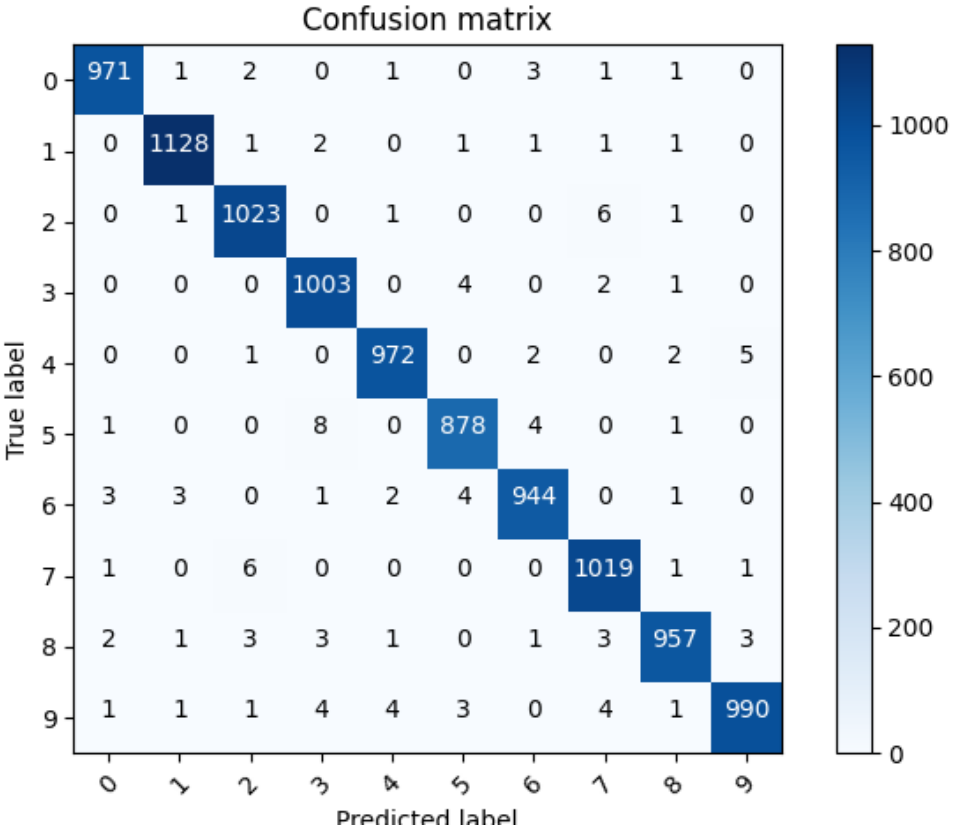

Figure 3: Confusion Matrix for convolutional model.

5.3 Future Work

6 References

References