Chapter 5. Conclusion

In this thesis, we examined several classification methods including the LCSs, the RBFNs and the minimum distance classifiers. Examining the performances of these methods, we conclude that the RBFNs perform the best among these methods without losing generality. The RBFNs learn the training samples as well as they classify the test samples. On the other hand, the LCSs learn the training samples completely even though they cannot classify the test images well. As we stated in the previous chapter, the LCSs cannot generalize the solution as well as the RBFNs do.

The major contribution of this work is an application of the RBFN to a practical pattern classification problem. A new RBFN structure is also introduced as a one-dimensional RBFN. This structure gave better classification than the multidimensional RBFN for some methods.

Future work may include the following issues:

- Use more training samples to be able to define the classes more accurately since we use the *k*-means clustering algorithm for calculating class centers and a statistical method for calculating the dilations of the RBFs.
- Use three dimensional color quantization to create more input features in the input vectors. This should be done as long as the computation time is not a concern.
- Improve the generalization property of the LCSs to have more generalized classification.
- Employ the novel approach to quantization of the color space explained in [1] to have more meaningful input features.