Thesis Title	Printed English Character Recognition by Neural Network
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Abstract

This thesis proposes the printed English character recognition by neural network. The multi-layer neural network with back-propagation learning algorithm are used for the pattern classification. This neural network is flexible and can learn the relationship between input patterns and output patterns even the distorted input patterns or the untrained input data. Character recognition starts with data acquisition, preprocessing, feature extraction and classification. For preprocessing, the classical document image processing are employed and the curve approximation principle has been adopted in the feature extraction step. Both the curve feature based and pixel based are feeded into the input nodes of neural network in order to achieve the acceptable error during the training by back-propagation method.

For experiment, the written program acquires input pattern in two dimensions bit-map graphic from the scanner machine with resolution 300x300 dots per inch (dpi), 9x15 pixels per font. The total of 74 classes from seven magazines and two newspapers is trained with alphabet, numeric and some specific symbols. For testing with six magazines and two newspapers, the average recognition accuracy achieves 98.247 percent for the trained character and 96.848 percent for the untrained character for five magazines. The approximate recognition speed is three characters per second.