Thesis Title	Hand Writing Lao Characters Recognition by Using Neural Networks
Thesis Credits	12
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Degree of Study	Master of Engineering
Department	Electrical Engineering
Academic Year	1998

Abstract

This thesis presents a method for hand writing Lao character recognition by using Neural Networks. In this recognition method , the input and preparation of data can be divided into 2 types. In the first type, an image of a hand-writing Lao character is translated into a set of codes starting from a combination of a directional line and a code of circles. The set of codes has been converted to have due to 0 and 1, so that , the set of codes is then input into Back-propagation Neural Networks for recognition (after training with training data). The back-propagation Neural Networks consist of 135 training patterns, 3 layers, 12 input nodes, 50 hidden nodes, 44 output nodes. An experiment was performed by using 1000 hand-writing characters from 30 persons. The results show that this method can recognize a correct character approximately 86 percent of a total and takes 0.45 second processing time for each character .

For another type we use bit-map pattern of each character to recognize Neural Networks which have 336 training patterns, 3 layers, 144 input nodes, 50 hidden nodes, 168 output nodes. It can recognize a correct character approximately 90

percent for 1000 hand-writing from 30 persons and takes 1.6 seconds processing time for each character.

From these studies, we can summarize that the method of hand writing Lao characters recognition by using Neural Networks ,in input data type of chain code takes shorter processing time, but gives less accuracy rate than bit-map type does.

Keywords : Rows Extraction / Characters Extraction / Binarization / Thinning / Chain Code / Recognition / Neural Networks / Learning