

## ABSTRACTS

Pattern recognition is a science that nowadays is still evolving and being a center for study and research. One kind of the pattern recognition that commonly known by people is the recognition of pattern letters. Japanese characters are letters that formed by the sketch lines that are sequentially directed with unique characteristics of each letter. Actually, Japanese characters, especially the Japanese Katakana characters had a lot of similarities between one letter with another letter. This gives its own problems in learning the Japanese Katakana characters.

With that problems, then the system of pattern recognition was built to recognize a Japanese Katakana characters which are taken from printed documents from various sources with the output of the correct reading of the letters by using a combination of Holistic Feature Extraction (HFE) and Learning Vector Quantization (LVQ). This system analyzes the value of recognition accuracy Japanese Katakana characters and analyze the factors that influence the accuracy of the recognition of Japanese Katakana characters using Holistic Feature Extraction (HFE) and Learning Vector Quantization (LVQ). Holistic Feature Extraction (HFE) method is a feature extraction method that can be used to recognize a different character by looking at the overall traits of a character contained in the letter. The technique used is based on grouping direction with certain steps that are already adapted to the need for the introduction of Japanese Katakana characters. In the classification of each input feature vector is used method of Learning Vector Quantization (LVQ) which aims to find the appropriate weights to classify input vectors into a class destination that has been initialized at the time of formation of LVQ network.

The pattern recognition system of Japanese Katakana letter that is using *Holistic Feature Extraction* (HFE) and *Learning Vector Quantization*(LVQ) lead to a conclusion that those methods can use in pattern ekstraction and in classify the Japanese Katakana letter because the feature vectors that is produced from *Holistic Feature Extraction* is unique for each character image and classification from *Learning Vector Quantization* that is good and has high accuration. Although there are some characters that almost have same form but the accuration level in this system that is influenced by image normalization size, virtual area and learning rate can reach 93.2174% for training data, 93.0435% for validation data and 92.1739% for testing data.

Keywords : Japanese Katakana Characters, *Learning Vector Quantization* (LVQ), *Holistic Feature Extraction* (HFE), Pattern Recognition