INTEGRATED RETINAL INFORMATION SYSTEM

FOR

ANALYZING KIDNEY CONDITION

HATTA PERDANA

UNIVERSITI UTARA MALAYSIA

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INTEGRATED RETINAL INFORMATION SYSTEM

FOR

ANALYZING KIDNEY CONDITION

A thesis submitted to the College of Arts and Sciences in partial fulfillment of the requirements for the degree of Master of Science (Information Technology)
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By

Hatta Perdana

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ABSTRACT

Iridology is a science and practice that can express body state based on the analysis of iris structure. The changes or disturbances of disease on body network will be informed by neuron nerve fiber to brain. This energy wave information spread to eye by brain, recorded and fixed by pupil. Then, these recorded fixation become data trails which can be detected by disturbance/disease that is filed by body organ. The research about iridology to analyzing kidney condition has been conducted before using Learning Vector Quantization (LVQ) method. The accuracy is not 100%. In this research, the researcher implements Support Vector Machine (SVM) in classifying the kidney condition to replace LVQ using Matlab R2007b. The accuracy in classifying the kidney condition for right eyes is 100% and for the left eyes is 100% in training set data. If we compared to the accuracy of classification using LVQ, implementing SVM is much better because by implementing LVQ, the accuracy is only 96% for right eyes and only 92% for left eyes.

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Data Mining is an exploration and analysis, by automatic or semi-automatic means, of large quantities of data in order to discover meaningful patterns (Tan, Steinbach, and Kumar, 2004). Data mining involves an integration of techniques from multiple disciplines such as database and data warehouse technology, statistics, machine learning, high-performance computing, pattern recognition, neural networks, data visualization, information retrieval, image and signal processing, and spatial or temporal data analysis (Han and Kamber, 2006).

In a content-based image retrieval system, there are often two kinds of queries: image sample-based queries and image feature specification queries (Han and Kamber, 2006). Image-sample-based queries find all of the images that are similar to the given image sample. This search compares the feature vector (or signature) extracted from the sample with the feature vectors of images that have already been extracted and indexed in the image database. Based on this comparison, images that are close to the sample image are returned. Image feature specification queries specify or sketch image features like color, texture, or shape, which are translated into a feature vector to be matched with the

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