Universiti Teknologi MARA

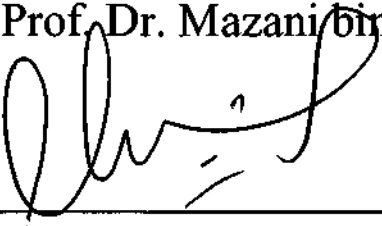# Offline Handwritten Character Recognition Using Backpropagation Neural Network

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Thesis Submitted in fulfillment of the requirements for
**Bachelor of Science (Hons) Information Technology
Faculty Of Information Technology And Quantitative
Sciences**

April 2005

SUPERVISOR'S APPROVAL

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DECLARATION

Herein is being admitted that this report together with this words, facts and relevant material are fully under my own, except several fact finding that each of their resource have been clarified.

1 APRIL 2005

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ACKNOWLEDGEMENTS

With the name of Allah the most Gracious, the most Merciful creator, I seek His Blessing on His Noble Prophet Muhammad s.a.w

First and foremost, I would like to express my gratitude to Allah s.w.t for giving me the opportunity to complete this final project on time. Without His Blessing, I would not have been able to do this task.

I would like to address my deepest appreciation and thanks to my supervisor, Prof. Madya Dr. Mazani b Manaf, thesis coordinator Mrs Zaidah, course tutor Mrs Salwani Jaffar and lecturers for their guidance, encouragements, comment and ideas for my project.

I would also like to express my thanks to my friends especially Nor Hamidah and Melati, whom also did their thesis this semester for their ideas, help and support. Thanks for being a friend in need.

Last but not least to my beloved parents, Mohadi b Midi and Saniah bt Wasim, my brothers Mohd Yusni and Rohaizat and friend Rokhairi for their morale support, care, love, and encouragement. Nothing is more precious than having a great family.

ABSTRACT

This project presents a study on the offline handwritten character recognition using backpropagation algorithm that is one of the training algorithms used in Artificial Neural Network. In this method, information about errors is propagated backwards from output to input layers in order to adjust the connection between the layers thus improving the network's performances. The purpose of this project is to recognized handwritten characters that were scanned earlier before the recognition process begins. For the purpose of this project, only lowercase characters from a to z are considered which total up to 26 characters all. Each handwritten characters is collected from 19 people, each in a 2 x 1.5cm box using a black ballpoint pen. From this process, 13 data collected are used for training and 6 more are used to train the network in order to evaluate the network's performance. The useful features of information that was extracted from the handwritten character images are the edges of the character using Sobel Edge Detection Method. As a result of this project, it is proven that the backpropagation algorithm can be used for recognizing handwritten characters and recognition tasks depends highly on how the data was preprocessed and the network parameter itself.