

Universiti Teknologi MARA

**HANDWRITING ANALYSIS FOR
EMPLOYEE SELECTION USING
NEURAL NETWORK**

**Zuriana Binti Mohd Zam
2004218746**

**Thesis submitted in fulfillment of the requirements for
Bachelor of Science (Hons) Intelligent System
Faculty of Information Technology And
Quantitative Science**

APRIL 2006

DECLARATION

I certify that this thesis and the research is a product from my effort and from my own work. Any quotation from other people works and ideas are published and are fully acknowledged based on the standard referring practices of the discipline.

27 APRIL, 2006



ZURIANA BINTI MOHD ZAM

2004218746

TABLE OF CONTENTS

<u>CONTENT</u>	<u>PAGE NUMBER</u>
DECLARATION	ii
ACKNOWLEDGEMENT	iii
TABLE OF CONTENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABSTRACT	xi
 CHAPTER ONE: RESEARCH OVERVIEW	
1.1 Introduction	1
1.2 Background of the Problems	2
1.3 Problems Statement	3
1.4 Project Objective	5
1.5 Project Scope	5
1.6 Significance of Research	5
1.7 Organization of the Thesis	6
 CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	7
2.2 Handwriting as a Personal Trademark	8
2.3 Handwriting Analysis	9
2.3.1 History of Handwriting Analysis	10
2.3.2 Handwriting Features in Revealing Personality	11

2.4	Handwriting Size	15
2.5	Handwriting Analysis for Employee Selection	16
2.6	Back-propagation in Handwriting Recognition	19
2.7	Existence of Handwriting Analysis for Employee Selection	21
2.8	Summary	22

CHAPTER THREE: METHODOLOGY

3.1	Introduction	23
3.2	Project Approach	25
3.3	Project Overview	25
3.4	Knowledge Acquisition	26
	3.4.1 Literature Search	28
	3.4.2 Literature Review	28
	3.4.3 Data Collection	28
	3.4.4 Data Management	29
	3.4.5 Data Representation	29
3.5	Conceptual Design	30
	3.5.1 Research Model	30
3.6	Project Development	31
	3.6.1 Project Design	32
	3.6.2 Project Construction	32
	3.6.2[a] Pre processing	33
	3.6.2[b] Algorithm and Parameter Setting	36
3.7	Testing and Evaluation	39
3.8	Result and Findings	39
3.9	Hardware and Software Requirement	40
	3.9.1 Hardware Specifications	40
	3.9.2 Software Specifications	40
3.10	Summary	41

ABSTRACT

This research project is about the handwriting analysis in revealing a personality for employee selection using the artificial neural network. The objectives of the research are to design a neural network model and to develop a neural network prototype that can be used by the employer in selecting and hire best applicant based in the size of the applicant handwriting that reveals the applicant personality. Two approaches that been used are distributed questionnaire among 100 respondent and using back-propagation model. This allowed researcher makes connection between handwriting analysis and neural network technique. 100 sample of handwriting has been collected from the questionnaire. From the handwriting sample, extraction feature has been done. The researcher extract an alphabet 'a' from the handwritings sample in order to represents the size of the handwriting and as the input for the back-propagation model. The network structure for the back-propagation model is 80 input nodes, 10 hidden nodes and 1 output node. This network structure has been tested with several number or learning rate and momentum in order to achieve more efficient network and as the result the best learning rate value and momentum value have been choose. The flexible and optimum value for stopping criteria is also being determined. At the end of completion project period, researcher found out that the result from the network model is accurate with the desired result and therefore, all objective in this research project have been achieved.