APPLICATION OF EIGENVECTOR AND EIGENVALUE FOR FACE RECOGNITION

REDHAYUDEN AIDIL BIN ABDUL RAZAK

Technical Report submitted in Fulfilment of the Requirement for Bachelor of Science (Hons.) Computational Mathematics in the Faculty of Computer and Mathematical Sciences University Teknologi MARA

2020

DECLARATION BY CANDIDATE

We certify this report and the project to which it refers is the product of our own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with standard referring practices of the discipline.

REDHAYUDEN AIDIL B ABDUL RAZAK

2016289506

JANUARY 2020

ABSTRACT

Face recognition is becoming one of the major aspects in computer vision. Face Recognition have various applications including Security Systems, Augmented reality, Real time identification and many more. Over the past few decades there have been numerous works done in this field and many methods and algorithms have been proposed. Although a revolutionary progress has been made regarding face recognition under usual circumstances and small variations but when it comes to recognizing faces in extreme variations like lighting and facial expressions the accuracy of the systems decreases dramatically. In this research, application of Eigenvector and Eigenvalue will be discussed for face recognition and execute a simple program using MATLAB. Furthermore, the accuracy of Eigenface will be shown and discussed at the end of the chapter.

TABLE OF CONTENTS

	Pages
DECLARATION BY THE SUPERVISOR	ii
DECLARATION BY CANDIDATE	iii
ACKNOWLEDGMENT	iv
ABSTRACT	v
TABLE OF CONTENT	vi
LIST OF TABLE	ix
LIST OF FIGURES	x
1. INTRODUCTION OF RESEARCH	
1.1 Introduction	1
1.2 Background of the Study	1
1.3 Problem Statement	3
1.4 Objective	3
1.5 Significance of the Project	4
1.6 Scope of Research	4
1.7 Project Benefit	5
1.8 Definition of Terms & Concept	5
1.9 Literature Review	6
1.10 Research Structure	10
1.11 Conclusion	11

2. METHODOLOGY

2.1 INTRODUCTION 12

2.2 FUNDAMENTAL OF RESEARCH 12

2.2.1 PRINCIPLE COMPONENT ANALYSIS 12

2.2.2 EIGENFACES FOR FACE RECOGNITION 14

2.2.3 FACE RECOGNITION 16

2.4 RESEARCH STEP 17

2.5 CONCLUSION 19

3. IMPLEMENTATION OF THE RESEARCH

3.1 INTRODUCTION 21

3.2 PREPARING DATASET 21

3.3 LOAD DATASET 23

3.4 LOAD FACE RECOGNITION 24

3.4.1 RANDOM IMAGE 26

3.4.2 FACE RECOGNITION FROM RANDOM IMAGE 26

3.5 RUN PROGRAM 27

3.6 CONCLUSION 28

4. RESULT AND DISCUSSION

4.1 INTRODUCTION 29

4.2 RESULT OF PROGRAM 29