

Table of Contents

Chapter Title	Page
Signature Page	i
Acknowledgment	ii
Abstract	iii
Table of Contents	iv
List of Figures	vi
List of Tables	viii
1 Introduction	1
1.1 Problem Statement	1
1.2 Approach In This Thesis	2
1.3 Organization Of This Thesis	3
2 Literature Review	4
3 Hand Detection System Architecture	7
3.1 Scanning Window	7
3.2 Boosted Classifier Cascade	8
3.3 Skin Detector	12
3.4 Features Extractor	12
3.5 Mahalanobis Classifier	16
3.6 Grouping, Filtering, and Averaging Module	17
4 Experimental Procedures	18
4.1 Data Acquisition	18
4.2 Training and Testing	20
4.2.1 Boosted Classifier Training	20
4.2.2 Skin Detector Training	21
4.2.3 Mahalanobis Classifier Training	22
4.2.4 Parameter Tuning for the System	23
4.2.5 Testing the Complete System	23

4.3	Summary of Experimental Specifications	23
5	Results and Discussion	25
5.1	Experimental Results	25
5.2	Discussion	26
6	Conclusion and Recommendations	30
	Bibliography	31
	Appendix A: List of Publications	34

