University of Benghazi

Faculty of Science

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An algorithm to Recognize Number in Image: Based on Statistical Image Analysis

A thesis submitted in partial fulfillment of the requirements for
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science, dept. of statistics

By

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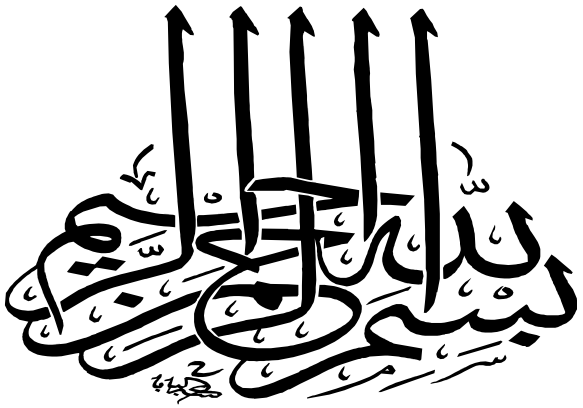

فلله الحمد رب السموات ورب

الأرض رب العالمين (36) وله

الكبرياء في السموات والأرض

وهو العزيز الحكيم (37)

الآيات 37,36 من سورة الجاثية

Abstract

In many applications, images consist of different types of objects, recognition problems are considered to be the largest challenge in image processing and computer vision. This work aims to recognize the numbers as objects in image. This thesis introduce an algorithm for number recognition. The algorithm based on three major approaches, that are: thresholding for converting gray level image into binary image, by using global threshold value which obtained by iterative algorithm. The second approach is median filter method for noise reduction, that is considered to be good approach in case of salt and pepper noise. The third method is projection approach for dimensional reduction (image strip), this is done by calculate the sum of rows and columns of filtered image, then determine the properties of each number. The algorithm has been applied to simulated data and gave good results, after then algorithm is applied to real data, and success results have been achieved in this case.

Acknowledgments

In the first and the end I thank god.

I would like to express my sincere thanks to my father, for his unconditional support, vanishing any troubles comes in my way.

I am also grateful to my advisor Dr, Fathi M Elramly for his guidance and patience to complete this thesis

Dedication

To my Parents, Brothers,

Sisters, and Grandmother

With appreciation

Amna

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