Character Recognition Using Matlab's Neural Network Toolbox

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Abstract

Recognition of Handwritten text has been one of the active and challenging areas of research in the field of image processing and pattern recognition. It has numerous applications which include, reading aid for blind, bank cheques and conversion of any hand written document into structural text form. In this paper we focus on recognition of English alphabet in a given scanned text document with the help of Neural Networks. Using Mat labNeural Network toolbox, we tried to recognize handwritten characters by projecting them on different sized grids. The first step is image acquisition which acquires the scanned image followed by noise filtering, smoothing and normalization of scanned image, rendering image suitable for segmentation where image is decomposed into sub images. Feature Extraction improves recognition rate and misclassification. We use character extraction and edge detection algorithm for training the neural network to classify and recognize the handwritten characters.

Keywords: *Character Recognition, Neural Network, Character Extraction algorithm, Edge Detection algorithm, Image acquisition*

1. Introduction

Handwriting recognition has been one of the most fascinating and challenging research areas in field of image processing and pattern recognition in the recent years [1]. It contributes immensely to the advancement of automation process and improves the interface between man and machine in numerous applications. In general, handwriting recognition is classified into two types as off-line and on-line handwriting recognition methods. The on-line methods have been shown to be superior to their off-line counter parts in recognizing handwritten characters due to the temporal information available with the former. However, in the off-line systems, comparably high recognition accuracy levels [5].

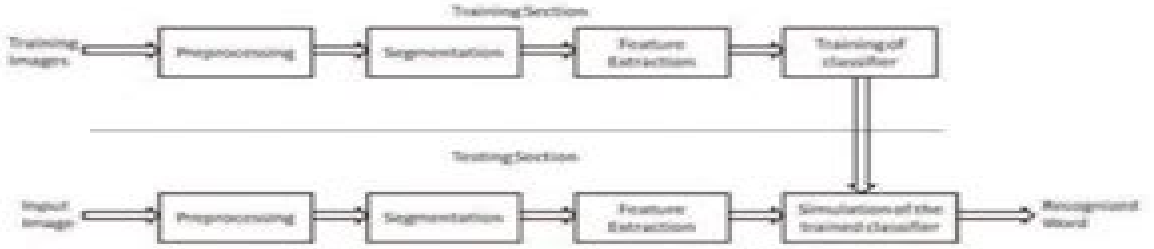

Figure 1. Generic Character Recognition Model

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WJ Hussar

Character Recognition Using Matlab S Neural Network Toolbox:

Adopting the Song of Phrase: An Mental Symphony within **Character Recognition Using Matlab S Neural Network Toolbox**

In a world eaten by screens and the ceaseless chatter of immediate interaction, the melodic elegance and mental symphony created by the published word usually disappear into the backdrop, eclipsed by the constant sound and distractions that permeate our lives. However, situated within the pages of **Character Recognition Using Matlab S Neural Network Toolbox** a charming literary prize filled with natural feelings, lies an immersive symphony waiting to be embraced. Crafted by an outstanding musician of language, that charming masterpiece conducts visitors on a mental trip, well unraveling the hidden melodies and profound impact resonating within each carefully crafted phrase. Within the depths of the touching examination, we shall examine the book is main harmonies, analyze its enthralling publishing fashion, and surrender ourselves to the profound resonance that echoes in the depths of readers souls.

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