

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 Matlab Neural 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].

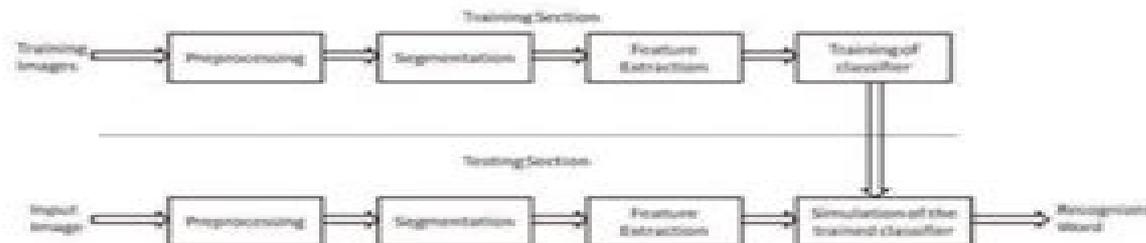


Figure 1. Generic Character Recognition Model

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JE Gale



Character Recognition Using Matlab S Neural Network Toolbox:

The Top Books of the Year Character Recognition Using Matlab S Neural Network Toolbox The year 2023 has witnessed a noteworthy surge in literary brilliance, with numerous compelling novels captivating the hearts of readers worldwide. Lets delve into the realm of popular books, exploring the fascinating narratives that have charmed audiences this year. The Must-Read : Colleen Hoover's "It Ends with Us" This heartfelt tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover masterfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can triumph. Character Recognition Using Matlab S Neural Network Toolbox : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This spellbinding historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Character Recognition Using Matlab S Neural Network Toolbox : Delia Owens "Where the Crawdads Sing" This evocative coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting. These bestselling novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of captivating stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is a masterful and suspenseful novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

<https://matrix.jamesarcher.co/public/uploaded-files/HomePages/Data%20Sheet%20Hp%20Proliant%20DI360%20Gen9%20Server%20Zones%20Inc.pdf>

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