

HANDWRITTEN CHARACTER RECOGNITION USING NEURAL NETWORK AND FUZZY LOGIC

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Abstract: Image based content extraction is one of the quickest developing examination territories in the field of sight and sound innovation. The extraction of content from intricate or increasingly vivid pictures was a difficult issue. Content information present in the pictures contains valuable data for routine clarification, ordering and organizing of pictures. Extraction of this data includes identification, confinement, extraction, improvement and acknowledgment of the content from the given picture. We have recommended that we convert the content from picture utilizing profound neural network. In this paper, an optical character acknowledgement framework dependent on Deep Neural Network (DNN) is used. The ANN is prepared utilizing the Back Propagation calculation. In the proposed framework, each composed English letter is represented by binary numbers that are utilized as contribution to a basic element extraction framework whose yields not resisting the information, are fed to a DNN. A while later, the feed forward algorithm gives knowledge about the activities of a neural network followed by the DNN algorithm which Bargains, Trains, Calculates error and modifies weights.

Keywords: Optical Character Recognition, Binarization, Thinning, Skewing.

I. INTRODUCTION

The goal of this project is to convert printed textual characters or handwritten characters recorded offline using both scanning system and cameras into a device usable textual content through simulating a Neural Network simply, so it would decrease the way of accumulating and storing statistics via human employees. Another motive is to provide an trade higher and quicker algorithm with better accuracy to recognize the characters. In this context we pick synthetic neural network and make it plenty greater tolerant to anomalies in the recorded picture or facts. Common optical person recognition duties include figuring out easy side detection and matching them with predefined patterns. In this research, characters are identified although noise along with inclination and skewness offers with the useful resource of education, the network to search for discrepancies in records and relate them with the use of vocabulary grammar and common place recurrences that may stand up after a person. Images are also masked in more than one method and processed in our own opinions to increase the self-perception stage of prediction.

II. LITERATURE SURVEY INTRODUCTION

2.1 Arabic Scripter Character Recognition

In 2002 Majid M. Altuwaijri and Magdy A. Bayoumi They develop system to recognize Arabic text using neural network used set of moment invariants descriptors(under shift, scaling and rotation) and artificial neural network(ANN) used for classification. The study has shown 90% of the high accuracy rate.

In 2015 Ashraf Abdel Raouf, Colin A. Higgins, Tony Pridmore and Mah-moud I. Khalil Haar studied approach for recognizing Arabic characters using Haar Cascade Classifier (HCC). These classifiers were trained and tested on some 2,000 images. To extract feature Haar- like feature extraction used and boosting of a classifier cascade. The system was tested with real text images and produces 87% accuracy rate for Arabic character recognition. In 2017 N. Lamghari, M. E. H. Charaf and S. Raghay. On this research the data are divided into three parts. From 34,000 characters 70% are used for training, 15% for testing phase and 15% for validation. To extract feature hybrid feature extraction used (pixel density, resize, freeman code, structural features, invariant) for recognition used feed forward-back propagation neural network. The system has achieved 98.27% high recognition rate.

In 2018 Noor A. Jebrila, Hussein R. Al-Zoubib and Qasem Abu Al-Haijac in addition to the preprocessing step includes in particular three levels. In the primary section, they employed word segmentation to extract characters. In the second section, Histograms of Oriented Gradient (HOG) are used for feature extraction. The very last phase employed Support Vector Machine (SVM) for classifying characters. They have carried out the proposed method for the recognition of the Jordanian metropolis, city and village names as a case examine, similarly to many other phrases that offers the characters shapes that aren't included with Jordan cities. The set has cautiously been selected to include each Arabic character in its all forms. To the conclusion, they have got constructed their own dataset inclusive of greater than 43.000 handwritten Arabic phrases (30000 used for training and 13000 used for testing stage). Recognition results show 99% rate of accuracy.