

Segmentation of Arabic Handwritten Numeral Strings Based on Watershed Approach

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Abstract : Arabic offline handwriting recognition systems are considered as one of the most challenging topics. Arabic Handwritten Numeral Strings are used to automate systems that deal with numbers such as postal code, banking account numbers and numbers on car plates. Segmentation of connected numerals is the main bottleneck in the handwritten numeral recognition system. This is in turn can increase the speed and efficiency of the recognition system. In this paper, we proposed algorithms for automatic segmentation and feature extraction of Arabic handwritten numeral strings based on Watershed approach. The algorithms have been designed and implemented to achieve the main goal of segmenting and extracting the string of numeral digits written by hand especially in a courtesy amount of bank checks. The segmentation algorithm partitions the string into multiple regions that can be associated with the properties of one or more criteria. The numeral extraction algorithm extracts the numeral string digits into separated individual digit. Both algorithms for segmentation and feature extraction have been tested successfully and efficiently for all types of numerals.

Keywords : handwritten numerals, segmentation, courtesy amount, feature extraction, numeral recognition

Conference Title : ICICSML 2018 : International Conference on Intelligent Computing Systems and Machine Learning

Conference Location : Dublin, Ireland

Conference Dates : February 15-16, 2018