Abstract

Recognition of handwritten numerals has gained much interest in recent years due to its various application potentials. The progress of handwritten Bangla numeral is well behind Roman, Chinese and Arabic scripts although it is a major language in Indian subcontinent and is the first language of Bangladesh. Handwritten numeral classification is a high-dimensional complex task and existing methods use distinct feature extraction techniques and various classification tools in their recognition schemes. Recently, convolutional neural network (CNN) is found efficient for image classification with its distinct features. In this study, a CNN based method has been investigated for Bangla handwritten numeral recognition. A moderated pre-processing has been adopted to produce patterns from handwritten scan images. On the other hand, CNN has been trained with the patterns plus a number of artificial patterns. A simple rotation based approach is employed to generate artificial patterns. The proposed CNN with artificial pattern is shown to outperform other existing methods while tested on a popular Bangla benchmark handwritten dataset. © 2016 IEEE.
Character recognition | Optical character recognition | Script identification

Prominence percentile: 90.596

Author keywords

Bangla Numeral  Convolutional Neural Network  Handwritten Numeral Recognition  Pattern Generation

Indexed keywords

Engineering controlled terms:

Classification (of information)  Complex networks  Convolution  Feature extraction
Information science  Neural networks  Pattern recognition

Engineering uncontrolled terms:

Bangla numeral  Convolutional neural network  Feature extraction techniques
Handwritten dataset  Handwritten numeral  Handwritten numeral recognition
Indian subcontinents  Pattern Generation

Engineering main heading:

Character recognition

Source Type: Conference Proceeding
Original language: English

DOI: 10.1109/ICIEV.2016.7760077
Document Type: Conference Paper
Sponsors: IEEE PAMI Technical Committee, Institute of Electronics, Information and Communication Engineers (IEICE), Institute of Mobile of Japan, Japan Institute of Navigation (JIN), Japan Society of Mechanical Engineers (JSME), The Institute of Electrical Engineers of Japan
Publisher: Institute of Electrical and Electronics Engineers Inc.

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ISBN: 978-147995179-6
doi: 10.1109/ICIEV.2014.6850817