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Bangla handwritten numeral recognition using convolutional neural network (Conference Paper)Akhand, M.A.H.^a, Rahman, M.M.^a, Shill, P.C.^a, Islam, S.^a, Hafizur Rahman, M.M.^b^aDept. of Computer Science and Engineering, Khulna University of Engineering and Technology, Khulna, Bangladesh^bDept. of Computer Science, International Islamic University Malaysia, Selangor, Malaysia

Abstract

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Recognition of handwritten numerals has gained much interest in recent years due to its various application potentials. Although Bangla is a major language in Indian subcontinent and is the first language of Bangladesh study regarding Bangla handwritten numeral recognition (BHNR) is very few with respect to other major languages such as Roman. The existing BHNR 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. It also automatically provides some degree of translation invariance. In this paper, a CNN based BHNR is investigated. The proposed BHNR-CNN normalizes the written numeral images and then employs CNN to classify individual numerals. It does not employ any feature extraction method like other related works. 17000 handwritten numerals with different shapes, sizes and variations are used in this study. The proposed method is shown satisfactory recognition accuracy and outperformed other prominent existing methods. © 2015 IEEE.

Author keywords

Bangla Numeral Convolutional Neural Network Handwritten Numeral Recognition

Indexed keywords

Engineering controlled terms: Classification (of information) Computational linguistics Convolution Extraction
Feature extraction Image classification Neural networks Telemedicine

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