Performance Evaluation of Neural Networks in Bangla OCR

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Abstract

Optical Character Recognition is of great interest in machine learning and computer vision. Recognition of Bangla Character is a fast forwarded leap to this journey. Neural Network is the field of study in computer learning and its emerging day by day. Time and accuracy is the first concern in learning by machine. Many research works have been accomplished in recognizing Bangla text (both hand written and printed) to achieve high accuracy rate. Neural network is not out of this research work. Back Propagation Neural Network (BPNN) is one of the mostly adopted neural network methodologies in learning and training OCRs. In this research, a comparison is asserted between BPNN and BPNN+BAM (a hybrid network). The hybrid network cuts down the no. of iterations in training the characters awfully in comparison with BPNN. Various number of (2, 4, 6) training images are considered to get the image feature matrix in feeding to the network. Number of iterations and error are observed while the weights are being updated in an optimized level for better recognition of characters with a high accuracy. The iterations in training depends on number of hidden layer used in the network. So, 50% and
70% of hidden layer are used for observation. The iteration decreases more than half of the iteration in BPNN while using BPNN and BAM as hybrid network for dimension reduction of feature matrix.

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**Keywords**

Bangla Character Recognition, Bangla Text Segmentation, Matra Detection, Neural Network, hybrid Neural Network