A Comparative Study on Handwritten Bangla Character Recognition

G M Sohanur Rahman[a], Mohammed Julfikar Ali Mahbub[b] Md. Shahriyar Hossain[c] Shihab Sharar[d] and Annajiat Alim Rasel[e]

Dept. of Computer Science and Engineering, BRAC University, 66 Mohakhali, Dhaka 1212, Bangladesh
{g.m.sohanur.rahman, mohammed.julfikar.ali.mahbub, md.shahriyar.hossain, shihab.sharar}@g.bracu.ac.bd, annajiat@bracu.ac.bd

Keywords: Character, Bangla, Recognition, Identification, Handwritten, Compound, Basic, Well, Variety, Subset, CNN, SVM

Abstract: The recognition of handwritten Bangla characters has recently piqued the public's attention, and it is expected to continue. A wide variety of characters of various kinds can be found in the Bangla language. These include numerals and basic characters, as well as compound and modifier characters, among other things. Character identification becomes increasingly difficult due to the inherent variety in individual writing styles, as well as the complex, cursive form of the characters. In order to compare the outcomes of two alternative techniques of handwritten Bangla character identification, this study uses two different methods of handwritten Bangla character identification. Using a hybrid model of the feature extraction technique to extract the features and a multiclass support vector machine (SVM) to perform the recognition, the first method is called classifier-based. It is based on a convolution neural network in the second instance (CNN). We will use ten Bangla numerals, fifty basic characters, and a subset of compound characters that are frequently used in the Bangla language to determine whether or not a character has been recognized. We expect, the CNN model beats the conventional classifier-based method in terms of recognition accuracy for Bangla basic characters, numbers, and the subset of compound characters.

REFERENCES

Bhowmik, T. K., Ghanty, P., Roy, A., and Parui, S. K. (2009). Svm-based hierarchical architectures for handwritten bangla character recognition. *International Journal on Document Analysis and Recognition (IJDAR)*, 12(2):97–108.

Das, N., Das, B., Sarkar, R., Basu, S., Kundu, M., and Nasipuri, M. (2010). Handwritten bangla basic and compound character recognition using mlp and svm classifier. *arXiv preprint arXiv:1002.4040*.

[a] https://orcid.org/0000-0000-0000-0000
[b] https://orcid.org/0000-0000-0000-0000
[c] https://orcid.org/0000-0000-0000-0000
[d] https://orcid.org/0000-0000-0000-0000
[e] https://orcid.org/0000-0000-0000-0000