

Handwritten Character Recognition using Convolutional Neural Network in the Context of Sinhala Language

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Handwritten character recognition is widely used for the English language. Among other South Asian languages, Sinhala characters are unique, because of their shape, which are having mostly curves and dots. These unique characteristics make it difficult to create a model to recognize Sinhala handwritten characters. It is more challenging to recognize the handwritten characters rather than printed characters because the handwriting of each individual is varying from each other. Therefore a little attention has been given to improve the Sinhala handwritten character recognition. Convolutional Neural Network (CNN) is playing a vital role in character recognition by supporting the more efficient image classification. In the CNN architecture four convolutional and max-pooling layers and two hidden layers were used for the experiment. CNN's performance was evaluated by training and testing the dataset by increasing the number of character classes. When it reaches 100 character class it shows reasonable accuracy of 90.27% for testing and around 97% of accuracy recorded for training. In total, around 110 thousand image data (250 per each character) were used for the experiment. This model performed better than similar models.

Key words: *Convolutional Neural Network, handwritten character recognition, sinhala language*

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