

Handwritten Malayalam Word recognition Based on Convolutional Neural Networks

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Abstract: *This research paper presents a system that can recognize handwritten Malayalam characters and words through the use of convolutional neural networks (CNNs). Handwritten character recognition (HCR) is a complex area of study that involves identifying human handwriting in different languages. While HCRs have been developed for languages such as English, Japanese, and Chinese, the task remains challenging for the languages in India, especially in south Indian languages due to the large character sets, compound characters, modifiers, and curvature shapes of characters in these languages. The main objective of this research is to convert the handwritten Malayalam characters and words containing in the input image into corresponding digital text form. This is achieved by utilizing a trained convolutional neural network (CNN) for converting the handwritten characters and words in the image to corresponding digital form. The recognition system is implemented in Python, with the TensorFlow and Keras frameworks used for developing the CNN model. Additionally, the Open-Source Computer Vision Library (OpenCV) is utilized for performing various operations on the input image. The proposed method also includes a technique for segmenting words and characters from an input image, and predicting characters using the CNN model. Initially, the system aims to identify characters and words, with plans to extend it to recognize complete sentences in the future.*

Keywords: Convolutional neural network CNN, Malayalam Characters, OpenCV, Python