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Hand Gesture Recognition Using Machine Learning with Convolutional Neural Network (CNN)

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Abstract: *Many deaf and hard-of-hearing people rely heavily on sign languages as a means of communication. Sign languages are the native languages of the Deaf community and provide full access to communication. Despite the fact that it is an effective mode of communication, communicating with speech impaired people remains a barrier for those who do not understand sign language. The purpose of this paper is to create a Web application that will convert hand gesture to English in the form of text. hence facilitating sign language communication. The web application uses the computer's webcam to collect visual data, which is then pre-processed using a combinational method before being recognized via template matching. This project tried different machine learning algorithms including SVM, RNN and CNN (Convolutional Neural Network). With the accuracy of 91% CNN algorithm has proven to be the most accurate classification tool.*

General Terms: Hearing-Impaired People, Computer Vision, Hand Gesture Recognition.

Keywords: Sign Language, ASL, Hearing Disability, Convolutional Neural Network (CNN), Computer Vision, Machine Learning, Gesture Recognition, Sign Language Recognition, etc.

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