Sign Language Detection using ML Technologies

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Abstract*: Sign language recognition is a leap forward for helping deaf-mute people. In sign language, every sign has a meaning assigned to it, so that it becomes easy to understand and interpret by the people. The main primary objective of our project is to bridge the gap between the deaf and dumb people and ordinary people without the need of an intermediary translator. Gesture recognition is a computer based visual technique used to detect and identify the object in an image or video. An application of this gesture recognition technique involves translating the sign language into the American language which can be further understood and interpreted by normal people. Many researchers have proposed their systems for the implementation of the ASL system. This report is a review of some studies related to the same topic. We addressed different approaches that used Convolutional Neural Networks (CNNs), K-Nearest Neighbours algorithm (KNN), Edge detection algorithm, Deep Neural Network (DNN), fuzzy clustering machine learning algorithm, Kernelized correlation filters (KCF) algorithm along with their results and drawbacks. Furthermore, we report on research gaps while summarizing these studies. From the above research papers, we got an average accuracy of 90.24%. To overcome the drawbacks, we propose a system which collects images for deep learning using webcam and OpenCV, with the help of TensorFlow Object Detection and Python that allows you to translate sign language in real time*

Keywords: ASL, TensorFlow, Python, OpenCV

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