Literature Survey

Title

Deaf and Dumb Gesture Recognition System

Publication

IJRASET Publications

Author name :

Vaibhav Shah

Published on :

12 April 2022

Methodology : Convolution Neural Network

CNN (Convolution Neural Network) feature Comparison: A very known Deep Learning Algorithm “Convolution Neural Network” it is used to extract very high-level data representations of the image content. Rather than pre-processing the data to derive features like textures and shape, CNN takes the image’s raw pixel data as input and learns how to extract these features and ultimately conclude what object they represent. Within Indian Sign Language (ISL), every letter has some symbol. For our machine to understand we take a large amount of images. CNN divides the recorded video in multiple images, these images will be gathered and will assign importance to various aspects/objects in the image and be able to differentiate one from other. Hereafter, the arrangement of images will be done according to the most informative image and they will be organized in a proper sequence and the software will be trained and written - using CNN. These images now are further extracted into frames. These extracted frames will be then compared with the trained model. If the match is found, then the corresponding output will be displayed. Whereas, if the match is not found, then the gesture will not be identified.

2.**Title:**

Real-Time Two-Way Communication Approach for Hearing Impaired and Dumb Person Based on Image Processing.

Author:

Shweta. S. Shinde, Rajesh M. Autee, Vitthal K. Bhosale

Methodology:

Proposed system is based on vision-based hand recognition approach. The hand gestures are identified under varying illumination conditions The proposed method performs background segmentation of the hand from the acquired data and then is assigned a particular gesture for different alphabets. It involves feature extraction methods to calculate peak calculation and angle calculation of hand gestures. Finally, the gestures are recognized by converting these

gestures into speech and vice versa. For extracting the features of speech signal Mel-frequency cepstrum coefficients and dynamic time warping are used. The proposed system is based on MATLAB.

Advantage:

Two-way communication is possible enabling effective communication between normal people and physically impaired

Limitations:

Detected only limited hand gestures (From alphabets A to I) Memory consumption is high as image processing is done using the built-in model of MATLAB.
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Title :

Translation of Sign Language for Deaf and Dumb People

Publication :

International Journal of Recent Technology and Engineering

Author name :

Suthagar S., K. S. Tamilselvan, P. Balakumar, B. Rajalakshmi, C. Roshini

Published on

17 January 2019

Methodology : Otsu algorithm

The Recognition of sign language involves pre-processing level and classification level. Preprocessing level involves gray scale conversion, noise reduction, background subtraction, brightness normalization and scaling operation. The gesture image made by deaf and dumb people is segmented using Otsu algorithm. After the segmentation is done, the database stored is compared with the segmented image taken for testing and the corresponding output will be displayed. It represents the input gesture images for Alphabets such as “A”, “B”, “Y”, “J” and shows the corresponding output for input gesture image
4.
Title:

Sign Language Recognition Using Deep Learning on Custom Processed Static Gesture Images.

Authors:

Aditya Das, Shantanu Gawde,

Khyati Suratwala, Dhananjay Kalbande

Methodology:

CNN to recognize sign language gestures, Transfer learning using Inception v3.

Advantage:

Average around 90% is obtained.

Limitation:

Dynamic hand gestures are not used. Only static finger spellings are used.
5.
Title:

Machine Learning Model for Sign Language Interpretation using Webcam Images.

Author:

Kanchan Dabre, Surekha Dholay

Advantage:

Prediction using Haar Cascade Classifier integrated with SVM, Classification based on supervised feed forward backpropagation algorithm. Convergence rate is faster. Average recognition rate: 91.11 %

Limitation:

Haar Cascade Classifier compromises on precision.

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Publication

International Journal for Research in Applied computer science

Author name

Ajabe Harshada

Published on :

15 July 2021

Methodology Convolution Neural Network

CNN for dynamic gestures to achieve faster results with high accuracy.
Communication is the medium by which we can share our thoughts or convey the

messages with other person. Nowadays we can give commands using voice recognition. But what if one absolutely cannot hear anything and eventually cannot speak. So the Sign Language is the main communicating tool for hearing impaired and mute people, and also to ensure an independent life for them, the automatic interpretation of sign language is an extensive research area. Sign language recognition (SLR) aims to interpret sign languages automatically by an application in order to help the deaf people to communicate with hearing society conveniently