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A Literature Survey on Real-Time Indian Sign Language Recognition System

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Abstract: *Sign language is one of the visual means of communicating through hand signals, gestures, facial expressions, and visual communication. It's the main form of communication for people with the disability of hearing or speech. People with disabilities like autism spectrum disorder may also find sign language beneficial for communicating. The system will realize Indian Sign Language using a keypoint detection model. It will be used to make a sequence of keypoints. These keypoints can then be passed to an action detection model. The proposed system will be predicting Indian Sign Language signs using several frames and predicting what action is being demonstrated. The system will use Mediapipe Holistic to extract the keypoints. It allows extracting keypoints from the user's hands, from the user's body, and the user's face. We will then use Tensorflow and Keras to build an LSTM model to be able to predict the action from the live video feed. The system is going to train a deep neural network using LSTM layers to go on ahead and predict that temporal component so we will be able to predict action from several frames. Then we are going to put it all together, the Mediapipe Holistic and trained LSTM model using OpenCV and go on ahead and predict in real-time using our webcam.*

Keywords: Machine Learning, Feature Extraction, Mediapipe Holistic, LSTM, Sign Language Recognition.

REFERENCES

[1]. P. K. Athira, C. J. Sruthi, A. Lijiya, "A Signer Independent Sign Language Recognition with Co-articulation Elimination from Live Videos: An Indian Scenario",2019.https://www.sciencedirect.com/science /article/pii/S131915781831228X
[2]. M. Jaiswal, V. Sharma, A. Sharma, S. Saini, R. Tomar, "An Efficient Binarized Neural Network for Recognizing Two Hands Indian Sign Language Gestures in Real-time Environment",2020https://ieeexplore.ieee.org/ abstract/document/9342454
[3]. C. J. Sruthi, A. Lijiya, "Signet: A Deep Learning based Indian Sign Language Recognition System", 2019.https://ieeexplore.ieee.org/abstract/document/8698006
[4]. T. Raghuveera, R. Deepthi, R. Mangalashri, R. Akshaya, "A depth-based Indian Sign Language recognition using Microsoft Kinect", 2020.https://link.springer.com/article/10.1007/s12046-019-1250-6.
[5]. A. Wadhawan, P. Kumar, "Deep learning-based sign language recognition system for static signs", 2020.https:// link.springer.com/article/10.1007/s00521-019-04691-y
[6]. S. Z. Gurbuz, A. C. Gurbuz, E. A. Malaia, D. J. Griffin, C. S. Crawford, M. M. Rahman, E. Kurtoglu, R. Aksu, T. Macks, R. Mdrafi, "American Sign Language Recognition Using RF Sensing", 2020.https://ieeexplore.ieee. org/abstract/document/9187644
[7]. M. Al-Hammadi, G. Muhammad, w. Abdul, M. Alsulaiman, M. A. Bencherif, M. A. Mekhtiche, "Hand Gesture Recognition for Sign Language Using 3DCNN", 2020.https://ieeexplore.ieee.org/abstract/document/9078786
[8]. R. Rastgoo, K. Kiani, S. Escalera, "Video-based isolated hand sign language recognition using a deep cascaded model", 2020.https://link.springer.com/article/10.1007%2Fs11042-020-09048-5

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[9]. G. A. Rao, K. Syamala, P. V. V. Kishore, A. S. C. S. Sastry, "Deep Convolutional Neural Networks for Sign Language Recognition", 2018. https://ieeexplore.ieee.org/abstract/document/8316344.

[10]. A. Mittal, P. Kumar, P. R. Roy, R. Balasubramanian, B. B. Chaudhuri, "A Modified-LSTM Model for Continuous Sign Language Recognition using Leap motion",2019. https://ieeexplore.ieee.org/abstract/document/8684245