

# A Comprehensive Review on Vision-based Sign Language Detection and Recognition

R. L. Weerasinghe\*  
Faculty of Information Technology  
University of Moratuwa, Sri Lanka  
reshakalakshan@gmail.com

G. U. Ganegoda  
Faculty of Information Technology  
University of Moratuwa, Sri Lanka  
upekshag@uom.lk

**Abstract** - Deaf or hard-hearing people's primary mode of communication is sign language. Communication between hard hearing and hearing people is greatly aided by sign language recognition technologies. With the advent of technology, many approaches proposed for sign language recognition. Among them, vision-based approaches are more convenient than sensor-based approaches. Vision-based approaches are involved five different stages where various techniques and algorithms are utilized in various approaches. The accuracy of the recognition is based on the techniques used and the quality of the input. Background invariance and lighting conditions highly affect the accuracy of the result. Simply by increasing the quality of the input, each and every method can approach a high accuracy rate. This paper provides a comprehensive introduction and comparison of the existing vision-based sign language detection and recognition approaches.

**Keywords** - ANN, computer vision, gesture recognition, image processing, sign language