International Conference on Electronic Design, 2008, pages 1-6

Extraction of head and hand gesture features for recognition of sign language

Abstract

Sign language is the primary communication method that impaired hearing people used in their daily life. Sign language recognition has gained a lot of attention recently by researchers in computer vision. Sign language recognition systems in general require the knowledge of the hand's position, shape, motion, orientation and facial expression. In this paper we present a simple method for converting sign language into voice signals using features obtained from head and hand gestures which can be used by hearing impaired person to communicate with an ordinary person. A simple feature extraction method based on the area of the objects in a binary image and Discrete Cosine Transform (DCT) is proposed for extracting the features from the video sign language. A simple neural network models is developed for the recognition of gestures using the features computed from the video stream. An audio system is installed to play the particular word corresponding to the gestures. Experimental results demonstrate that the recognition rate of the proposed neural network models is about 91%.

Keywords — Gesture recognition, sign language recognition, sign languages, hand gestures