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Abstract

The hand gesture is one of a powerful means of communication among human. Sign language is an essential and natural expressive mean of communication for the deaf people. American sign language helps the hearing-impaired people to communicate with the world as well as the computer. This paper proposes a technique for the recognition of American alphabet sign language. The technique of image processing, that is singular value decomposition (SVD), is applied in order to extract characteristics of the hand images performing individual alphabet of American sign language. The decomposed singular values extracted from the image are used to classify the image into one of the ASL alphabets. These SV features are then applied to SVM classifier for gesture recognition. The totals of 26 American sign language gestures are used in the experiments. This procedure is executed on a database with a total of 899 images of static American sign language gestures taken under different background and lighting conditions. The recognition rate of the proposed technique at about 74 % is achieved.

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Index Terms

Computer Science

Pattern Recognition

Keywords

American sign language, Singular value decomposition , Support vector machine.