Patent Search

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Abstract:

Abstract: Communication between hearing-impaired individuals' and the general population remains a significant challenge, primarilydue to the lack of effective real-
translation tools lor sign language. Although the recognition of sign language by'machines has been an ongoing research pursuit, existing methods predominantly rel
image processing techniques and manually engineered features. These conventional approaches often fall short in terms of efficiency, adaptability, and real-world ap
this study, we propose an innovative deep learning framework for sign language recognition, addressing the limitations of current methods. Our approach integrates
spatial feature extraction, R.NNs for capturing temporal dependencies in gesture sequences, and Transformer-based architectures for improved attention modeling a
contextual understanding. This hybrid model enhances gesture recognition accuracy by leveraging automated feature learning and advanced optimization strategies.
boost performance, we employ several preprocessing techniques, including background subtraction, hand segmentation, and keypoint detection, which help isolate r
gesture features from noisy input data. These steps significantly improve the quality of input fed into the recognition model.Experimental evaluations demonstrate th
method outperforms traditional sign language recognition methods, showcasing greater classification accuracy and robustness. The results indicate strung potential
world deployment, making this system a viable tool for bridging the communication gap faced by the hearing-impaired community. Overall, this research contributes
development of accessible and inclusive technologies aimed al. empowering individuals with hearing impairments

Complete Specification

dvantages of invention:
Im proved Accuracy: Leveraging machine learning techniques, the proposed system can achieve higher accuracy in recognizing*and interpreting a broader range of
language gestures, reducing communication errors.
<■* e
Real-tim e Processing: The system is designed for real-time processing, enabling fluid and natural sign language conversations, making it suitable for practical and d
communication scenarios.
Extensive Vocabulary: The proposed system can potentially recognize and interpret a more extensive vocabulary of signs and gestures, allowing for a richer and mo
versatile communication experience.
A utom ated Feature Learning: Machine learning models automate feature extraction and learning, adapting to diverse signing styles and variations more effectivel
manual methods.
Scalability: The system can efficiently scale to handle a large dataset of signs and .gestures, accommodating the needs of continuous sign language communication
.expanding its usability.
Enhanced Accessibility: By accurately recognizing sign language, the proposed system promotes accessibility and inclusivity, bridging the communication gap betwe
individuals with hearing impairments and those who do not understand sign
language

View Application Status