Paper Tite:
A Method of Yoga Action Pattern Recognition Based on Computer Vision Technology
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1.Summary

Object detection and recognition using computer vision technology has been a challenging research field for the past three decades .The paper focuses on yoga action pattern recognition and proposes a method based on computer vision technology .The method involves analysing and studying yoga movements and theory using computer vision techniques such as human eye tracking, face recognition, head movement tracking, gesture recognition, and posture recognition .The proposed method utilises a network framework and structure to classify candidate regions and output detected bounding boxes . RGB image data and bone data are collected and used as input for the joint model, which outputs the category of yoga action and the score of the action. The joint model combines the advantages of RGB data and bone data, enabling accurate and efficient recognition of yoga movements. Multi-modal data, combining RGB data and bone data, shows great advantages in the joint model for the classification and grading of yoga movements . The accuracy of the classification and grading is represented by the accuracy rate of the yoga posture category and the accuracy of the score of the yoga posture .
The proposed method offers a comprehensive approach to yoga action pattern recognition using computer vision technology, with potential applications in fitness tracking, motion analysis, and virtual coaching.

1.1 Motivation

The continuous development of computer technology and the increasing attention towards intelligent machines and equipment have led to a growing interest in human motion recognition . Existing human motion recognition methods mainly focus on recognizing simple human body parts based on external features, but in real environments, recognizing human motion in video is often necessary .The research on human motion recognition, including yoga movement recognition, holds practical significance. The paper aims to address the challenge of recognizing yoga action patterns using computer vision technology.The motivation behind the research is to develop a method that utilises computer vision techniques to analyse and study yoga movements, enabling accurate recognition and classification of yoga actions .However, the proposed method has potential applications in fitness tracking, motion analysis, and virtual coaching, further motivating the research in this area.

1.2 Contribution

The paper explores a new man-machine interaction mode and conducts research on robot intelligence technology, which has significance and influence on various disciplines.
The paper proposes a method of yoga action pattern recognition based on computer vision technology. It analyses and studies yoga movements using computer vision techniques such as human eye tracking, face recognition, head movement tracking, gesture recognition, and posture recognition. The method utilises a network framework and structure to classify

candidate regions and output detected bounding boxes. The research contributes to the field of digital image processing by applying various transformations and processes such as denoising, edge processing, feature extraction, graying, and image segmentation to improve the visual effect and quality of low-quality images.

1.3 Methodology

The paper utilises computer vision technology for yoga action pattern recognition. However, the method involves analysing and studying yoga movements using computer vision techniques such as human eye tracking, face recognition, head movement tracking, gesture recognition, and posture recognition .The proposed method is based on a network framework and structure, where candidate regions are classified and output as detected bounding boxes through feature extraction. RGB colour images of yoga postures are collected using an RGB camera, and bone data is extracted from these images using a bone extraction model .The RGB image data and bone data are input into a joint model, which outputs the category of the yoga action and the score of the action .The research also applies various transformations and processes such as denoising, edge processing, feature extraction, graying, and image segmentation to improve the visual effect and quality of low-quality images.

1.4 Conclusion

The paper proposes a method of yoga action pattern recognition based on computer vision technology. It analyses and studies yoga movements using computer vision techniques such as human eye tracking, face recognition, head movement tracking, gesture recognition, and posture recognition .The proposed method utilises a network framework and structure, classifies candidate regions, and outputs detected bounding boxes through feature extraction. It also extracts bone data from RGB images and uses a joint model to accurately classify and grade yoga movements .The research contributes to the field of digital image processing by applying various transformations and processes to improve the visual effect and quality of low-quality images.

2.Limitations

2.1 First Limitation: The Study hence emphasises on postures but they could include the mental and health impacts also. If the yoga postures are done wrongly, in that case the health impacts for the wrong postures should be analysed.

2.2 Second Limitation: The limitation of the algorithm of Computer vision is not listed and it was not even compared with the other algorithm so see which works better, to discuss its strength and weakness.

3.Synthesis

We can be conducted to explore the application of deep learning techniques in yoga action pattern recognition, as it has shown promising results in various computer vision tasks .
The proposed method can be extended to handle more complex yoga movements and variations, considering that yoga poses can vary significantly among individuals .
Investigating the use of multi-modal data, such as combining RGB data and bone data, can be explored to improve the accuracy and robustness of the yoga action recognition system .We can focus on optimising the training process and algorithm used in the proposed method to enhance the efficiency and performance of the system