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Recognition Of Cloth Pattern Using SVM And Neural Network

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ABSTRACT Digital image quality evaluation is the area of concern from last several decades and to evaluate the image quality there are two acclaimed approaches namely subjective quality evaluation and Objective quality evaluation approach which are recognized as standard approaches by International Telecom Union (ITU). The conventional reported works based on these acclaimed standard approaches are failed to achieve the accuracy. Existing approaches like structural similarity index matrix (SSIM) is an innovative approach which performs well on the content dependent distortions (content dependent in the sense variation in color, shape, texture) but not as efficient as Peak to Signal Noise ratio.

A novel algorithm is presented in this paper which provides an accurate performance to evaluate the quality of digital quality measurement. Mostly the conventional approaches fails to yield accurate results because most of the techniques relies on human visual data not on the residual distortion data which is termed as hidden distortion by most of the researchers. An innovative auto aggressive based on internal generative mechanism (IGM) which is successful to get Mean Square error both on distorted portion and residual portion as well. In order to yield the better result we have to combine the both residual distortion and visual distorted portion MSE's. The experimental results yield the better performance as well as accuracy too.

Keywords: cloth pattern , machine learning , Support vector machine

INTRODUCTION

Sensing the sensory information plays an important role in the area of digital image processing. In the advance arena of technological era sensory information is acquired by using the advance devices namely Sensors, Satellites, Radar, Camera, Mobile so on. But since from the starting of the human existence Human Visual System (HVS) is most effective and naturally adapted mechanism to view the sensory information in digital form and as well as natural form.

Cloth pattern recognition using machine learning involves the application of image classification and pattern detection techniques to automatically identify and categorize fabric designs such as stripes, polka dots, florals, checks, and solids. This process typically begins with the collection of a diverse dataset of fabric images, followed by preprocessing steps like resizing, normalization, and augmentation to enhance model performance. Features such as color distribution, texture, and shape descriptors are extracted using methods like Histogram of Oriented Gradients (HOG) or deep convolutional neural networks (CNNs).

These features are then fed into classifiers such as Support Vector Machines (SVM), Random Forests, or deep learning models to learn and predict the type of cloth pattern present in a given image. Machine learning-based cloth pattern recognition offers a scalable and efficient solution for industries such as fashion retail, textile manufacturing, and e-commerce. By automating the identification of fabric designs, it enhances inventory management, supports intelligent search filters for customers, and facilitates virtual try-on and

recommendation systems.

Deep learning models, especially Convolutional Neural Networks, have proven particularly effective due to their ability to learn hierarchical features directly from image data without the need for manual feature engineering. As the technology evolves, integration with augmented reality and mobile applications is also becoming feasible, providing real-time pattern recognition capabilities in consumer devices.

PROPOSED METHOD

4.1 Training and Testing Images

The clothing patterns can be comes under the fou categories they are A. Irregular B .Pattern less C. Plaid D Stripe

Fig.1. dataset of training image

Once the superlative function has been estimated accordin to the particular image, every pixel in the image is mapped in the same way, independent of the value of surrounding pixels in the image. These techniques are simple and fast, but they can cause a loss of contrast. Examples of common global tone mapping methods are contrast reduction. Local features are the points, small patches and lines.

4.2 BLOCK DIAGRAM

The system of automatic pattern and color recognition system capable of real time recognizing the patterns and colors. Choosing the appropriate pattern and color of the clothes is important to assist the blind people to make decisions. The recognizing process depends basically on two factors they are preprocessing and feature extraction they are required to implement a system to recognize the different patterns. For that the training algorithm called support vector machine are used.

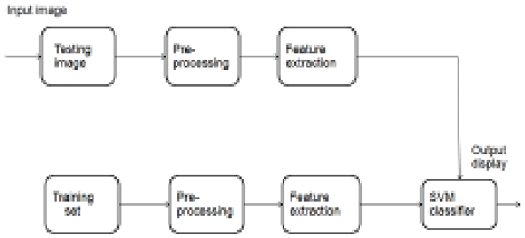

Fig.2.Block diagram

This system can handle clothes with complex patterns and recognize clothing patterns of four categories they are plaid, striped, patternless, and irregular. This system is also able to identify 11 colors are red, orange, yellow, green, cyan, blue, purple, pink, black, grey, and white. In the case of multiple colors in the colors, the first several dominant colors are spoken to users.

Fig. predicted cloth pattern

Fig. pattern detected as checkered

CONCLUSION

The system method provides a simple and reliable method for recognizing the pattern and the color. The images are taken from CCNY database in order to implement the proposed system. All data were pre-processed and the feature of the images can be distinguished. This development of automatic recognizing clothing pattern system capable of real time identification of the pattern and the color in the cloth. In this project the image captured by the camera and gets processed to identify the pattern of the clothes that is chosen. The system method provides a simple and reliable method for recognizing the pattern and the color. The images are taken from CCNY database in order to implement the proposed system. All data were pre-processed and the feature of the images can be distinguished. This development of automatic recognizing clothing pattern system capable of real time identification of the pattern and the color in the cloth. In this project the image captured by the camera and gets processed to identify the pattern of the clothes that is chosen.

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