iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VI **Month of publication:** June 2022

DOI: https://doi.org/10.22214/ijraset.2022.44118

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VI June 2022- Available at www.ijraset.com

Fabric Color and Design Identification for Vision Impaired

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Abstract - The weave pattern (texture) of woven fabric is considered to be an important element in the design and production of high-quality fabric. Traditionally, the recognition of woven fabric has many challenges due to its visual cues made by hand. In addition, methods based on pre-machine learning algorithms depend directly on manual features, which are time-consuming and erroneous processes. Therefore, the default system is required to be divided into layers of woven fabric to improve productivity. In this paper, we propose an in-depth study model based on data extraction and a transfer method for the separation and recognition of woven fabrics. The model uses a residual network (ResNet), where the fabric texture features are automatically extracted and segmented in a way that ends. We tested the results of our model using test metrics such as accuracy, approximate accuracy, and F1 score.
Keywords – Artificial intelligence, color, design, fabric and image processing

I. INTRODUCTION

Tactile texture refers to the tangible sense of place and visual texture refers to the perception of the shape or content of an image. Diagnosis of texture in the human visual system is easily possible but in the context of machine vision and image processing your own complexity. In image processing, texture can be defined as the function of the variation in the intensity of the pixel light intensity. Text images in image processing and visualization refer to images where a specific pattern of scattering and distribution of pixel intensity of light is repeated sequentially in all images. Text separation is one of the most important areas in the context of text analysis whose main purpose is to provide descriptive definitions of textual images into categories. Text separation means giving an anonymous sample image to one of the previously defined classes. In "Text Mode", the purpose is to extract 3D images that are covered in a text image. This field examines the structure and structure of the elements in the picture by analyzing their text structures and the interrelationships. The purpose of "Texture Synthesis" is to produce images with the same texture and input. Apps for this category are the creation of graphic graphics and computer games.

II. LITERATURE REVIEW

[1] N. Yanushkevich, D.Hurley and P.S. P. Wang; "Biometrics Awareness and Intelligence Pattern", Computer Science Research, Pages: XXXIX, 866, Issue: 03, [2008].
This talk discusses some of the key features of biometrics and their application. It basically includes the following: An Overview of Biometric Technology and Applications, Security Importance: Terrorist Attack Scenario, What are BiometricTechnologies? Biometrics: Comparison Analysis and Performance, Analysis: Concept Pattern Identification, Value for Measurement and Misconceptions, How It Works: Fingerprint Removal and Matching, Iris, Face Analysis, Verification Applications, Emotional Imaging: Emotional Imaging. Synthesis of biometrics, Modeling and Simulation, and more Examples and Applications for Biomedical Imaging Programs in the Interactive Fuzzy Learning Environment. Finally, some guidelines for future research are discussed.

[2] Sudharshan Duth, Amrita Vishwa Vidyapeetham; “Color detection of RGB model images using MAT LAB”, International Journal of Engineering and Technology, Volume: 7, Release: 1, [3], Page number: 29-33, May 2018.
This method of using color thresholds to identify two-dimensional images in MATLAB using the RGB Color model to see the Color of the user's choice in the image. Methods that combine image detection convert 3-D RGB image to Gray Image, then delete two images to get a 2-D black and white image, filter the image elements using the center filter, find. and the connected part marks the digital images in the connected area and uses the combo box and its features to calculate the metrics for the entire marking area. In addition, the shadow of the image element is determined by checking the RGB value of all the image elements present in the image. The color acquisition algorithm is implemented using the MATLAB image capture toolkit. The result of this use can be used as part of security applications such as spy robots,object tracking, color-based object classification, and access detection.
The Artificial neural network system is used to interpret the color. Microprocessor based system can predict 5 colors and basic patterns. Good collection numbers are made in the SC condition, and corresponding color collections are obtained based on the FCM compilation algorithm. A camera-based prototype system that detects clothing patterns in four main stages.

CNNY Clothing Pattern data set and other different pattern data sets are used to determine color and pattern. The big problem is that this Hybrid method is very slow and can have a lot of bugs. Hybrid-based models require lager data sets to train data and this method also does not separate data at times so there is a high risk of unrelated data interference which will affect the accuracy of the result.

III. SUSPENDED SYSTEM

A. VGG CNN Algorithm

The proposed system uses the VGG CNN algorithm to detect the color and pattern of the fabric, with a high degree of accuracy. The data is divided here into three parts (testing, training and classification). Train data is trained and categorized groups with similar databases. After the data is trained the test data is given to the team with the same characteristics as the group. Now, the vgg algorithm is used to determine the color accuracy with which patterns can be obtained. And here the weights are given one by one, the most important pattern is given the least important and the most important pattern is given the most popular.

MageNet is without a doubt the best thing that can happen as important labeled image data has been made available for model training. Used in-depth reading for the first time to find the top 5 error rate in ImageNet Challenge up to 16.4%. It was the first network to detect error rates of less than 25%. After the success of AlexNet, non-CNN electronic methods were completely discontinued.

IV. FLOW DIAGRAM

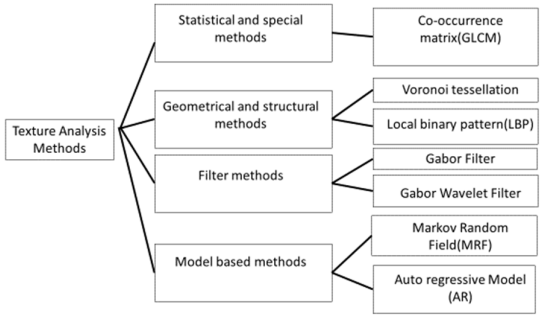

Fig:1 Data Flow diagram of color and pattern detection.

V. DATA CORRECTION

The first step is to preview the training data in order to process the modeling data for the system. Pre-processing involves steps such as removing empty or missing values from a data set, deleting an unexpected image, pattern distortion, adjusting forecasts. Now we will do 1. Rescale data set (Receiving root creates an image) 2. Binarize Data. an image) 2. Binarize Data.

VI. RESCALE DATA SET

If image data contains attributes with separate scales, multiple machine learning algorithms can benefit from enlarging attributes so that they all have the same scale. This helps to improve algorithms such as gradient downtime. It is also useful for algorithms that provide input such as regression and neural networks and algorithms such as gradient reduction. It is also useful for weight loss algorithms such as retrofitting and neural networks and algorithms that use distance measurements such as VGG and CNN algorithms. We can re-measure your data using scikit-learn using the Min Max Scaler class.

VII. BINARIZE DATA

We can convert our data using a binary threshold. All over-value values are marked 1 and are all equal or bas you want to make pure values. Below is marked as 0. This is called duplicating your data or limiting your data. It is also useful if it is an engineering aspect and you want to add new features that reflect something meaningful. We can create new binary features in python using scikit-learn with the Binarizer class.

VIII. GENERAL DATA

Suspension is a useful way to convert attributes with Gaussian distribution with different methods and standard deviation to standard Gaussian distribution with 0 meaning and standard deviation of 1. We can streamline data using Scikit-Read and the StanderScaler section. With this, we can easily predict, by keeping a list of images you are considering separating.

IX. ORDINARY PERFORMANCE DETAIL SET

This brings us to the last part of the data processing process, which is data acquisition. Proven by some experiments that machine learning models and in-depth models perform better in a normal data set compared to a non-standard data set. The general goal is to change prices on a standard scale without distorting the difference between the range of values.

Database Separation.

Dealing with Categorical Data Customization of a data set to get improved results.

Filling in the missing numbers

X. OUTPUTS

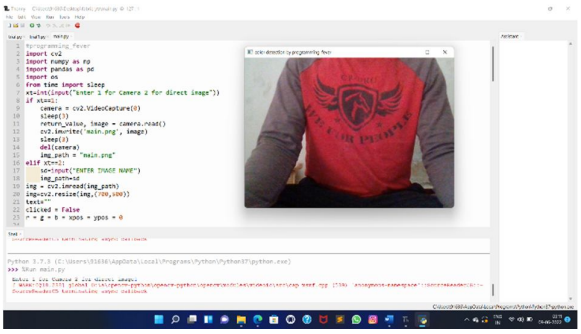

Fig.2

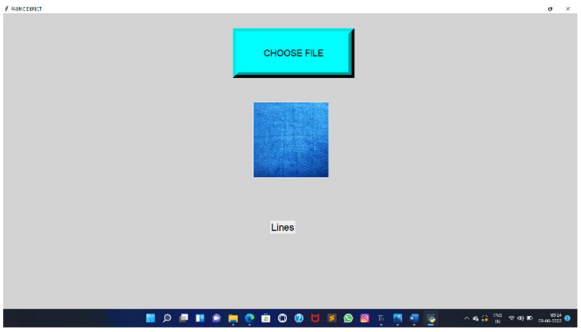

Fig:3

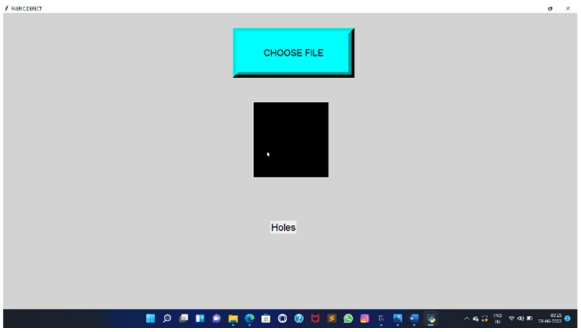

Fig:4

XI. CONCLUSION

In this project, we used the VGG CNN Algorithm classifier to predict the color and pattern of a given image, here we present a guessing model with a selected feature used as a Pattern and color display and provide audio output that helps the model improve. accurate. Choosing clothes with different patterns is a challenge for visually impaired people. In our paper we propose a program that helps people with disabilities to choose clothes easily. The program can effectively identify colors and patterns. In the coming work our results and performance appearances can be done in different ways.

XII. FUTURE WORK

In addition we have planned a review where we can get input from the user. The purpose of further improvement is to include size and value It helps the blind to find the size and value without the help of someone else.

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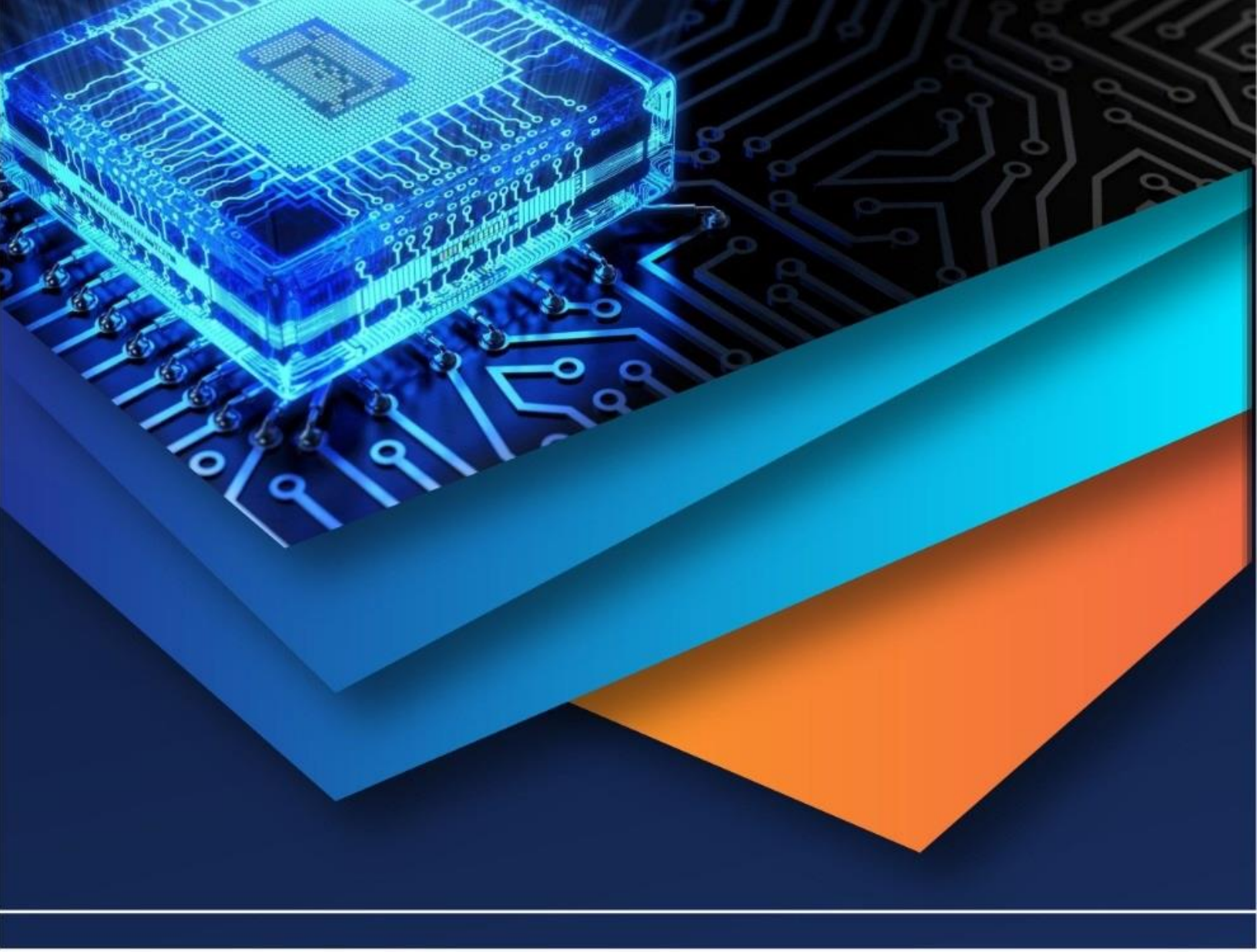

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