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Virtual Dresser Using Deep Learning

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ABSTRACT: With the introduction of smart phones and tablets, we will enjoy online shopping anytime and while sitting in any a part of the planet . Online shopping has certainly replaced the normal way of buying daily goods and clothing. When we choose online shopping, we get the advantage of credibility. Today, almost every online store offers cash on delivery, free shipping and reduced prices.These online shopping stores eliminate the hassles of parking, getting stuck in traffic jams and standing in long queues for billing.They have also benefited those people that always complain of shortage of your time . This is the rationale , majority of the people have turned to online shopping. Here, they enjoy quick access to a beautiful price range, prompt customer support, and free home delivery. There is little question that these are a number of the attractive features that catches the eye of the consumers. Although there's one small issue that would make people lose interest in online shopping, it'd not be possible to try-on clothes in such cases. Our motive here is to extend the time efficiency and improve the accessibility of garments try by creating a virtual room environment.

Our proposed approach is especially supported extraction of the user image from the video stream, alignment of models and complexion detection. Extraction of user allows us to make an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment within the interface . We use the 3D locations of the joints for positioning, scaling and rotation so as to align the 2D cloth models with the user. Then, we apply complexion detection on video to handle the unwanted occlusions of the user and therefore the model. Lastly, the model is superimposed on the user in real time..

KEYWORDS: Virtual Dresser (VD), OpenCV

I. INTRODUCTION

Trying clothes in clothes shops is usually a time consuming activity. Besides, it'd not even be possible to try-on clothes in such cases as online shopping. Our motivation here is to increase the time efficiency and improve the accessibility of clothes try by creating a virtual room environment.The problem is simply the alignment of the user and thus the material models with accurate position, scale, rotation and ordering. First of all, detection of the user and thus the body parts is one of the foremost steps of the matter . In literature, several approaches are proposed for part detection, skeletal tracking and posture estimation. the issues are often brilliantly managed by means of straightforward software like OpenCV and visual studio. Extraction of user image inorder to form an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment within the interface .Thus the user can see a reflection of themselves within the costume of their preference and interact with the screen.The usage of web camera makes it less difficult on the worth for the users of online shopping.The implementation by OpenCV makes it more platform independent and portable and there by accessible in any kind of device .

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Our approach are often summarized as follows:

- Extraction of the user from the video stream by using depth and user label data,
- Scaling of the models by using the Euclidean distance among the body joints and distance of the user from the camera.
- complexion detection so on stop unwanted occlusions of body parts and thus the model,
- Superimposition of the model on the user.

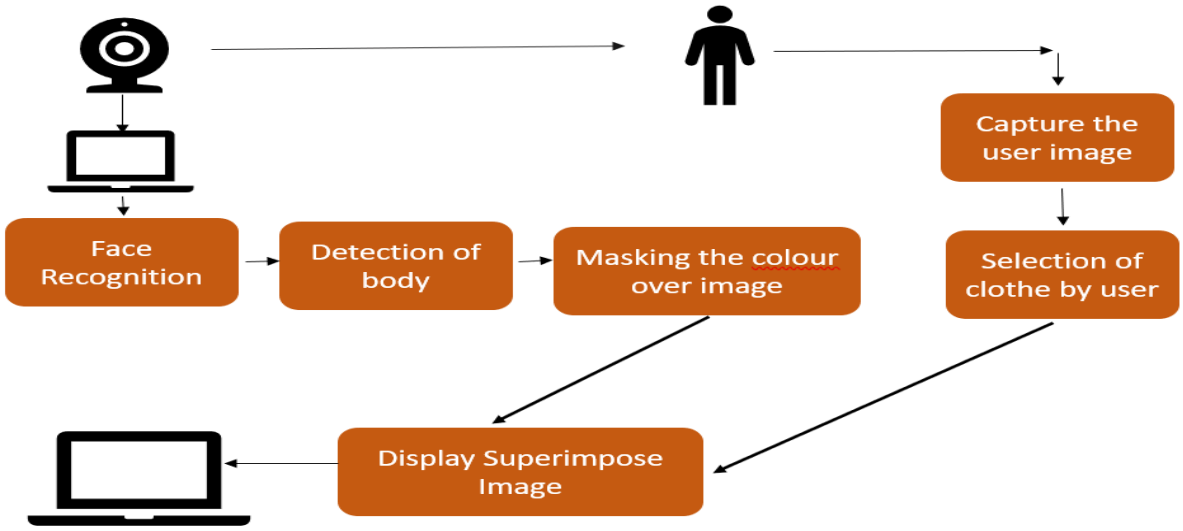
A sample application with interface is developed to see practically the performance. The interface allows the user to choose a dress by means of hand movements

II. LITERATURE SURVEY

The Paper mainly focuses on user Live video streaming, body part detection, and model alignment. Uses modules for positioning joints, rotation, and scaling to align color printing models with the user. Uses Camera with the use of Opencv and gloncv model. In this phase, the first two streams have been used to develop the human model. Within the API, the SSD mobile net provides details about the location of users standing in front of the Camera, with the detailed location. The Paper performs the initial size estimation. Next, in Virtual Dresser customize user-friendly clothing from a Different size. The user chooses the required dress item to wear out of the list. After selecting a costume, a user image is available. For a particular image, an image of the selected outfits is placed at the user's location.In the paper retexturing algorithm is used with the help the camera that provides depth information. The new texture implant is made using a line extension of luminance information. The Paper extracts and separates the user from the background to create an AR virtual environment. To differentiate the front They used body parts to fit shirt to the model. They smoothen the spatial coordination to minimize vibration and blurring in the joints. They calculated the angle between the joints to set the rotation angle of the parts of the model. One of the major contributions of the paper is that they automatically create an invisible (or virtual) avatar based on user's body size and uses it for appropriate clothing, alignment, and mimicry in our visual-system experiment.

III. PROPOSED METHODOLOGY

The Proposed System Uses OpenCV and Extraction of user image to create an augmented reality environment by isolating the user area from the video stream and superimposing it onto a virtual environment in the user interface. Thus the user can see a reflection of themselves within the costume of their preference. Object Detection in Computer Vision is as simple because it sounds detecting and predicting objects and localizing their area and therefore the SSD Object Detection extracts feature maps employing a base deep learning network, which is CNN-based classifiers and applies convolution filters to finally detect objects. Our implementation uses MobileNet as the base network then we Overlap the dress and the accessories on user with that we get the final results



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IV. ALGORITHM TO CREATE VIRTUAL DRESSER

Step1: Use of OpenCv

Step2: Capturing the video using openCv packages (cv2)

Step3 : RGB Normalization – OpenCV uses color contrast based variation of objects by detecting the pixels which reside on the boundaries where colors change values suggestively

Step4: S.O.T.A – GluonCV contains a several function which together helps in detecting the outlines of varied objects during a frame

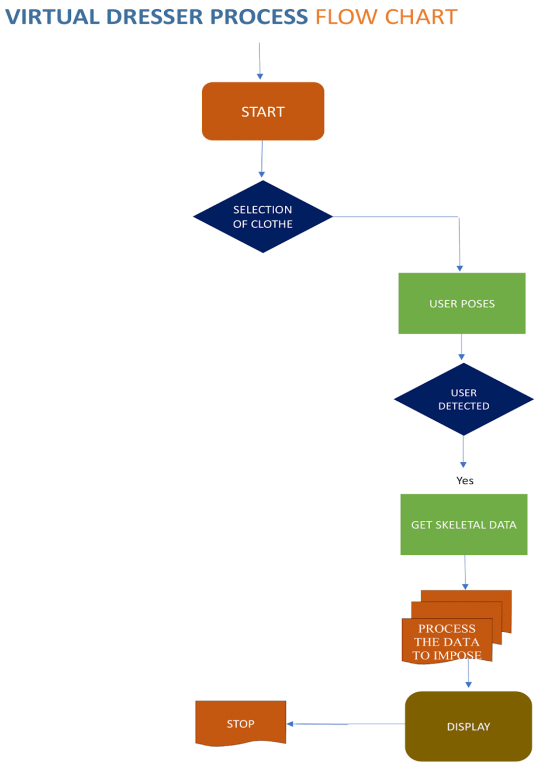
Step5: Expansion of colors and logos -. Here in our case, we might just like the outmost containing outline which may relate to the T-shirt which the user or test object is wearing

Step6 : With mxnet deep learning algorithm we carry out the clothes and ornaments to human body

Step7: It makes the method user interactions with the help of Numpy/OpenCV packages for edge detection and Context Embedding

V. SYSTEM WORK FLOW

Figure shows the system Flow Diagram is basically a graphical and sequential representation of the major steps involved in a systematic process. A System Flow Diagram shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored .



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VI. OBJECT DETECTION

Object Detection in Virual Dresser detecting and guessing body part and localizing their area. Object Detection is predicated on image classification. regardless of the latter being performed using neural networks or primitive classifiers, image classification is usually the primary step. Building further on this, we will perform detection which localizes all possible objects during a given frame.

Object detection is so important within the world immediately because it is employed in many fields like Healthcare, Agriculture, Autonomous Driving, and more. It provides an efficient way of handling image classification by detecting the thing within the image and letting us know where it's within the image using localization, That is, it creates a bounding box round the object. this might sound like just another image classification algorithm but it's super powerful within the current world. Self Driving Cars use object detection to detect what's there ahead of them. they're utilized in healthcare to know and classify differing types of tumors and diseases within the physical body .

The Applications of Object Detection are endless. But what makes it more interesting is to be ready to achieve such technology in real-time. This has been very challenging thus far . By employing a simple technique we will boost the performance of object detection in real-time drastically. this will be observed by a rise in FPS (Frames Per Second) and its faster processing of every frame. we'll exactly discuss this system during this article by using OpenCV's Deep Neural Network (or) simply called DNNs.

Single Shot MultiBox Detector (SSD)

SSD Object Detection extracts feature map employing a base deep learning network, which are CNN based classifiers, and applies convolution filters to finally detect objects. Our implementation uses MobileNet because the base network.

VII. CONCLUSION AND FUTURE WORK

Here the virtual Dresser application requires only a front image. for every product to superimpose it onto the user and thus the 2D graphics of the merchandise seem to be relatively satisfactory and practical for several uses. The presented methodology is used to align the models with the user and to see the procedure under different conditions. The experiments have resulted with acceptable performance rates for normal postures. There are many possible executions regarding the model used for fitting. it's possible to use a homographic transformation to the photographs rather than the simple scale-rotate technique so on match multiple joints altogether although it'd require more computation. Another alternative could be using many pictures at different angles so as that it'd be possible to form more realistic video streams. One could achieve a uniform effect using 3D models and rendering them according to this angle and positions. Second approach would also make it possible to implement a physics engine to follow side the model.

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