

Research Discourse Project

“Revolutionizing Style: Augmented Reality for Indian Attire”

Problem Statement: Creating a model which utilizes augmented reality to demonstrate Indian traditional attire and style it accordingly.

Objective:

The primary objective of the project is to develop a cutting-edge augmented reality (AR) model that showcases and styles Indian traditional attire. The project uses AR for an immersive experience, letting users explore and experiment with diverse

Indian traditional clothing styles. This not only enhances the user's engagement but also contributes to the preservation and promotion of India's diverse cultural heritage.

Relevance of Augmented reality to fashion industry:

AR enables virtual try-on experiences, allowing users to visualize clothing and accessories in real-time without physically trying them on. Users can see how different styles look on them, enhancing the online shopping experience.

Coding Part:

```
In [7]: !pip install tensorflow
!pip install opencv-python
from tensorflow.keras.preprocessing.image import ImageDataGenerator
from tensorflow.keras.preprocessing import image
from tensorflow.keras.optimizers import RMSprop
import matplotlib.pyplot as plt
import tensorflow as tf
import numpy as np
import cv2
import os
```

```
Requirement already satisfied: tensorflow in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (2.15.0)
Requirement already satisfied: tensorflow-intel==2.15.0 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow) (2.15.0)
Requirement already satisfied: google-pasta>=0.1.1 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (0.2.0)
Requirement already satisfied: packaging in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (21.3)
Requirement already satisfied: termcolor>=1.1.0 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (2.4.0)
Requirement already satisfied: tensorboard<2.16,>=2.15 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (2.15.2)
Requirement already satisfied: gast!=0.5.0,!0.5.1,!0.5.2,>=0.2.1 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (0.5.4)
Requirement already satisfied: keras<2.16,>=2.15.0 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (2.15.0)
Requirement already satisfied: flatbuffers>=23.5.26 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (23.5.26)
Requirement already satisfied: protobuf!=4.21.0,!4.21.1,!4.21.2,!4.21.3,!4.21.4,!4.21.5 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (4.21.3)
Requirement already satisfied: grpcio<2.0,>=1.24.3 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (1.62.0)
Requirement already satisfied: typing-extensions>=3.6.6 in c:\users\charul sankhe\onedrive\documents\custom office templates\lib\site-packages (from tensorflow-intel==2.15.0->tensorflow) (4.5.0)
```

Requirement already satisfied: requests-oauthlib>=0.7.0 in c:\users\charul sankhe\onedrive\site-packages (from google-auth-oauthlib<2,>=0.5->tensorboard<2.16,>=2.15->tensorflow-intel==2.15.0->tensorflow) (1.3.0)
Requirement already satisfied: idna<4,>=2.5 in c:\users\charul sankhe\onedrive\documents\site-packages (from requests<3,>=2.21.0->tensorboard<2.16,>=2.15->tensorflow-intel==2.15.0->tensorflow) (3.2.2)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in c:\users\charul sankhe\onedrive\site-packages (from requests<3,>=2.21.0->tensorboard<2.16,>=2.15->tensorflow-intel==2.15.0->tensorflow) (1.26.4)
Requirement already satisfied: charset-normalizer<3,>=2 in c:\users\charul sankhe\onedrive\site-packages (from requests<3,>=2.21.0->tensorboard<2.16,>=2.15->tensorflow-intel==2.15.0->tensorflow) (3.2.2)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\charul sankhe\onedrive\documents\site-packages (from requests<3,>=2.21.0->tensorboard<2.16,>=2.15->tensorflow-intel==2.15.0->tensorflow) (2023.7.22)
Requirement already satisfied: pyasn1<0.5.0,>=0.4.6 in c:\users\charul sankhe\onedrive\documents\site-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard<2.16,>=2.15->tensorflow) (0.4.8)
Requirement already satisfied: oauthlib>=3.0.0 in c:\users\charul sankhe\onedrive\documents\site-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<2,>=0.5->tensorboard<2.16,>=2.15->tensorflow) (3.2.2)

Collecting opencv-python

Using cached opencv_python-4.9.0.80-cp37-abi3-win_amd64.whl (38.6 MB)

Requirement already satisfied: numpy>=1.19.3 in c:\users\charul sankhe\onedrive\documents\site-packages (from opencv-python) (1.26.4)

Installing collected packages: opencv-python

Successfully installed opencv-python-4.9.0.80

```
4]: img=image.load_img(r"C:\Users\charul sankhe\OneDrive\Desktop\rd code\train\female image\img1.jpg")  
plt.imshow(img)
```

Out[4]: <matplotlib.image.AxesImage at 0x20d1e940af0>



In [39]: `cv2.imread(r"C:\Users\charul sankhe\OneDrive\Desktop\rd code\train\female image\`

Out[39]: (614, 394, 3)

In [37]: `train=ImageDataGenerator(rescale=1/255)
validation=ImageDataGenerator(rescale=1/255)`


```

Epoch 1/8
3/3 [=====] - 1s 354ms/step - loss: 0.7362 - accuracy: 0.3
3
Epoch 2/8
3/3 [=====] - 1s 329ms/step - loss: 0.6679 - accuracy: 0.7
7
Epoch 3/8
3/3 [=====] - 1s 349ms/step - loss: 0.6203 - accuracy: 0.8
0
Epoch 4/8
3/3 [=====] - 1s 312ms/step - loss: 0.6142 - accuracy: 0.5
0
Epoch 5/8
3/3 [=====] - 1s 387ms/step - loss: 0.7022 - accuracy: 0.5
3
Epoch 6/8
3/3 [=====] - 1s 384ms/step - loss: 0.4984 - accuracy: 0.7
7
Epoch 7/8
3/3 [=====] - 1s 316ms/step - loss: 0.5771 - accuracy: 0.7
0
Epoch 8/8
3/3 [=====] - 1s 327ms/step - loss: 0.5132 - accuracy: 0.8
3

```

```

In [43]: dir_path=r"C:\Users\charul sankhe\OneDrive\Desktop\rd code\test\female image"
for i in os.listdir(dir_path ):
    img=image.load_img(dir_path+'//'+i)
    plt.imshow(img)
    plt.show()

```








```
|: dir_path=r"C:\Users\charul sankhe\OneDrive\Desktop\rd code\train\male image"  
for i in os.listdir(dir_path ):  
    img=image.load_img(dir_path+'/' +i)  
    plt.imshow(img)  
    plt.show()
```





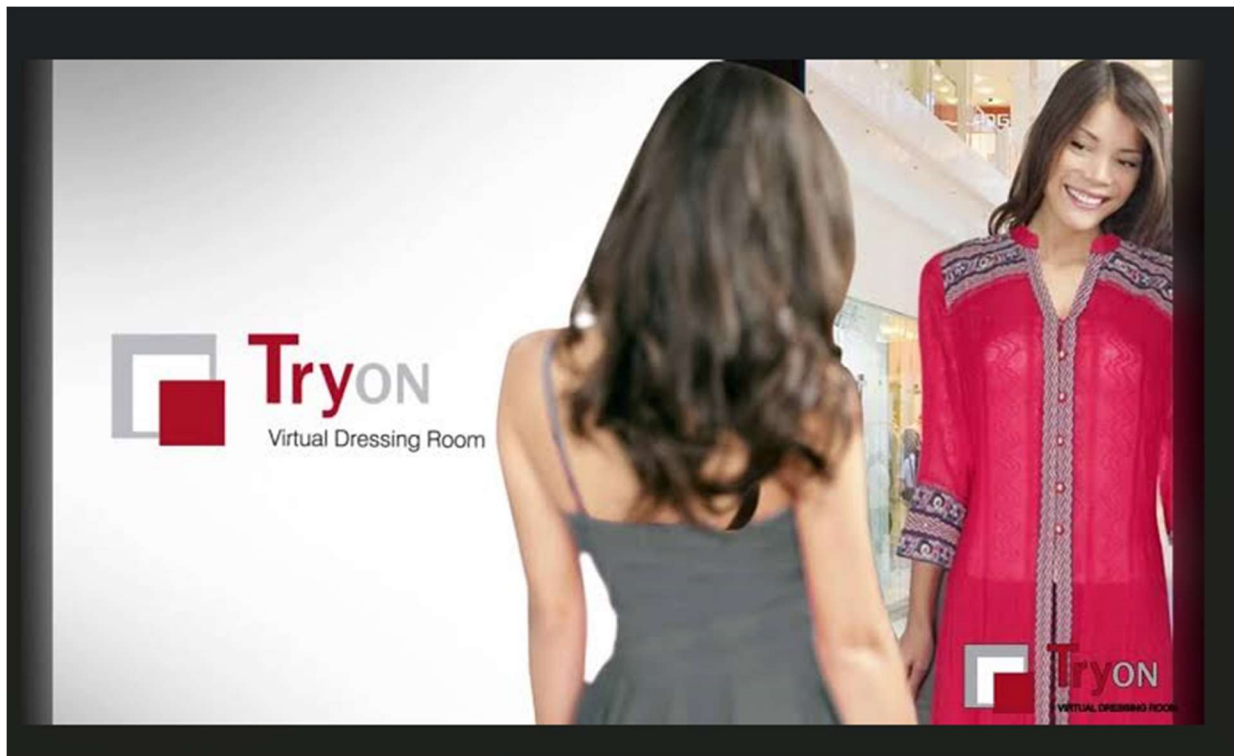


Conclusion:

The integration of augmented reality (AR) in showcasing Indian traditional attire brings about a transformative and engaging experience in the fashion industry. The AR model elevates user creativity while preserving cultural heritage through insights into historical attire .

Future prospects include AI-driven styling, cross-cultural exploration, and promoting sustainable fashion.

Enthusiastically, it serves as a dynamic bridge between tradition and innovation, shaping how we perceive, experience ,and celebrate traditional attire. The project seeks to blend technology with cultural richness, offering a novel way for users to nonet with and appreciate the beauty of Indian traditional clothing in a digital realm.



Source: <https://images.app.goo.gl/zNFuJwn8m3cCh5o37>

Research Challenge

Current AR technology might have limitations in accurately capturing and rendering complex details of traditional garments. Building accurate and diverse AR models of Indian attire requires significant data collection and development efforts. We were facing some challenges for installing heavy libraries and packages due to memory processing issues.

Future Scope:

AR could bring history and cultural significance of different attire to life, offering interactive learning experiences about Indian traditions. Virtual try-on could bridge geographical barriers, making Indian attire accessible to a global audience. Designers could use AR to visualize and experiment with new designs, colours, and fabric combinations in a virtual environment before physical production. AR platforms

could connect designers and artisans across India, facilitating collaboration and fostering innovation in traditional attire design.