

GradCam_presentation

March 7, 2021

0.1 Initialise Neural Network

```
[ ]: ### if you want to load the model, run the below commented code  
  
model_path = '../Config/inceptionResnetV1.pth'  
model = torch.load('../Config/inceptionResnetV1.pth',map_location=torch.  
    ↳device('cpu'))
```

```
[98]: categories
```

```
[98]: ['uncovered', 'incorrect', 'covered']
```

0.1.1 IMAGES USED

Given below is an example of an image that has been used to train our network to identify if masks are being worn properly or not. WE will apply GradCam to this image to see what the Neural network looked at to make its prediction on if the mask is beng worn correctly or not.

```
[3]: from PIL import Image  
  
covered_path = '/datasets/MaskedFace-Net/train/covered/14931_Mask.jpg'  
pil_im = Image.open(covered_path)
```

```
[4]: pil_im
```

```
[4]:
```



0.2 GRADCAM

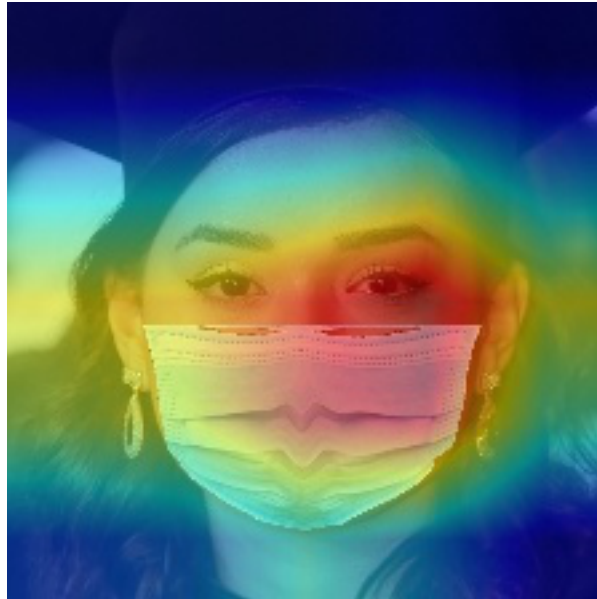
Applying GradCam to the above image here are examples of what the algorithm produced. The first image is a heatmap of the area determined by the neural network to be the most important for this prediction

```
[109]: #initialise gradCam parameters
grad_cam = GradCam(model=model, feature_module=model.repeat_3, \
                    target_layer_names=["4"], use_cuda = False)

[119]: GradCam_heatmap = '/home/pjuneja/FaceMaskDetection_old version/notebooks/cam.
      ↪jpg'
pil_im_2 = Image.open(GradCam_heatmap)
```

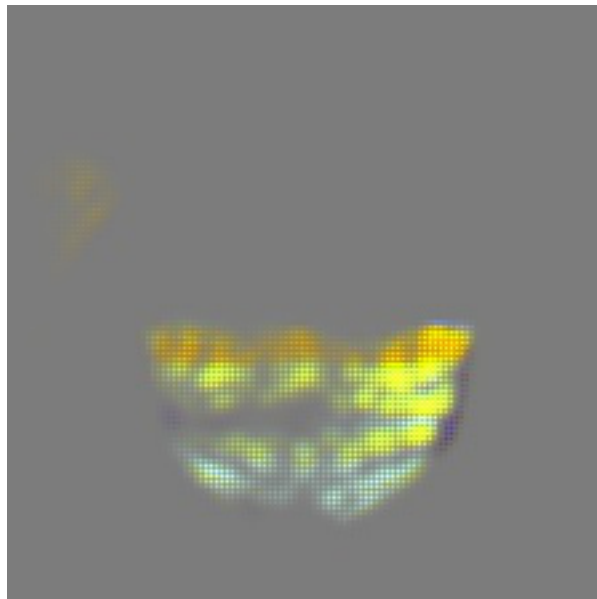
```
pil_im_2
```

[119]:



```
[122]: from PIL import Image
GradCam_gradcam = '/home/pjuneja/FaceMaskDetection_old version/notebooks/gb.jpg'
pil_im_2 = Image.open(GradCam_gradcam)
pil_im_2
```

[122]:



The above images help us go deeper into the blackbox involved while dealing with

convolutional neural networks and help give us an idea if our algorithm works correctly or not.

[]: