

## Without Ensemble

Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



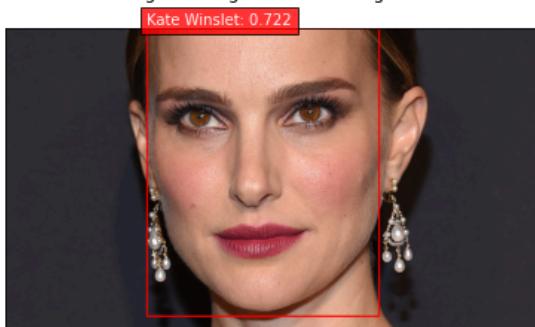
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



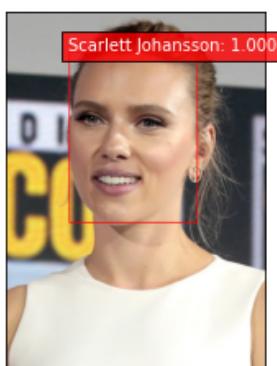
Original Image with Bounding Box



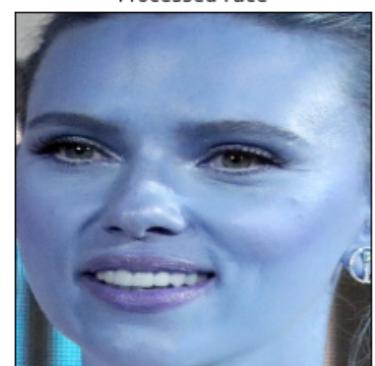
Processed Face



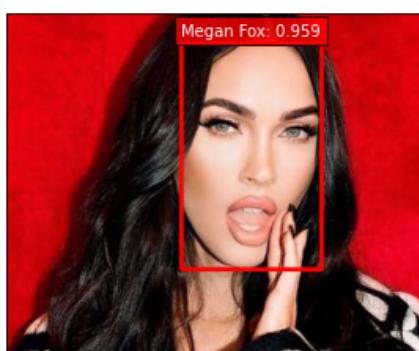
Original Image with Bounding Box



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Processed Face



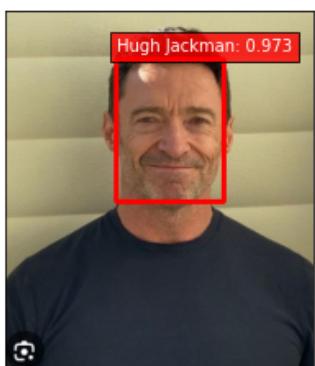
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box

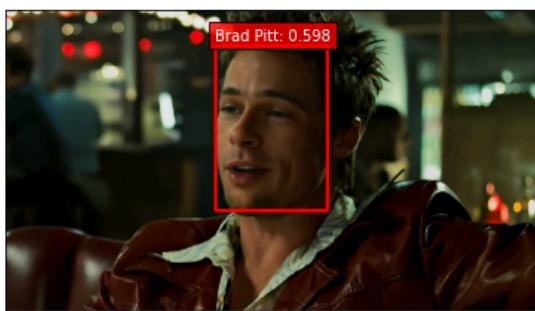


Processed Face



## With Ensemble

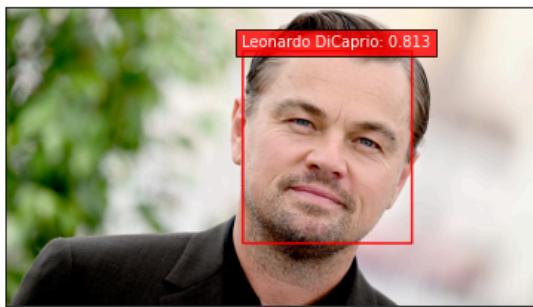
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



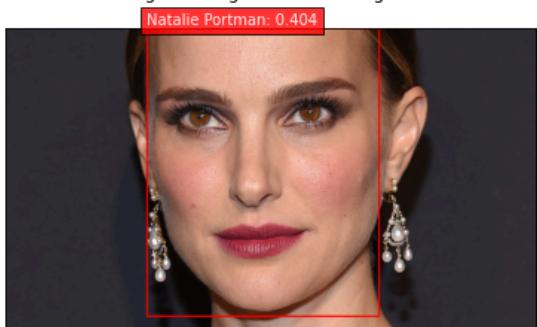
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



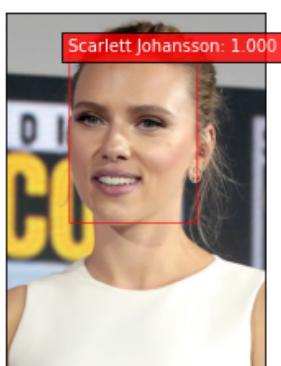
Original Image with Bounding Box



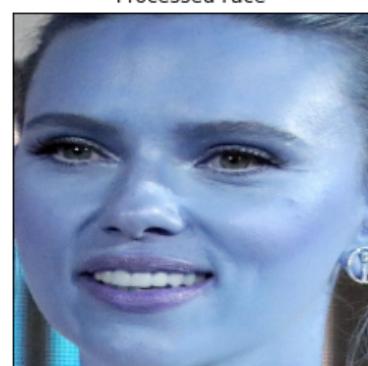
Processed Face



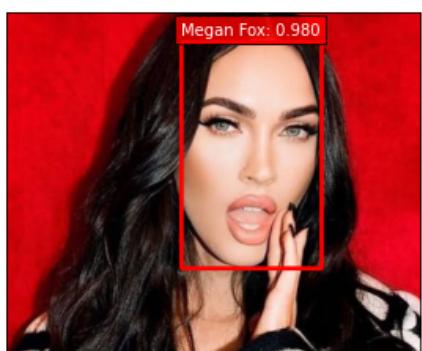
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



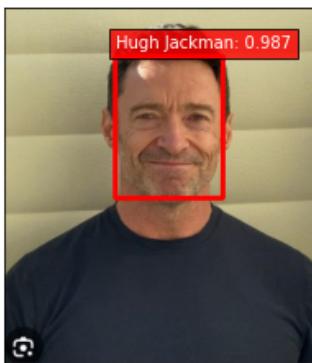
Original Image with Bounding Box



Processed Face



Original Image with Bounding Box



Processed Face



Confusion Matrix

	True	Angelina Jolie -	Brad Pitt -	Denzel Washington -	Hugh Jackman -	Jennifer Lawrence -	Johnny Depp -	Kate Winslet -	Leonardo DiCaprio -	Megan Fox -	Natalie Portman -	Nicole Kidman -	Robert Downey Jr -	Sandra Bullock -	Scarlett Johansson -	Tom Cruise -	Tom Hanks -	Will Smith -
	Predicted	Angelina Jolie -	Brad Pitt -	Denzel Washington -	Hugh Jackman -	Jennifer Lawrence -	Johnny Depp -	Kate Winslet -	Leonardo DiCaprio -	Megan Fox -	Natalie Portman -	Nicole Kidman -	Robert Downey Jr -	Sandra Bullock -	Scarlett Johansson -	Tom Cruise -	Tom Hanks -	Will Smith -
Angelina Jolie -		10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brad Pitt -		0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denzel Washington -		0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hugh Jackman -		0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0
Jennifer Lawrence -		0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0
Johnny Depp -		0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0
Kate Winslet -		0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0
Leonardo DiCaprio -		0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0
Megan Fox -		0	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0
Natalie Portman -		0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0
Nicole Kidman -		0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0
Robert Downey Jr -		0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0
Sandra Bullock -		0	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
Scarlett Johansson -		0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0
Tom Cruise -		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
Tom Hanks -		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Will Smith -		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

Training on fold 1/10

Number of training images: 16200

Number of validation images: 180

507/507 [=====] - 339s 668ms/step - loss: 0.4543 - accuracy: 0.8853 - val\_loss: 0.8187 - val\_accuracy: 0.7833  
Training on fold 2/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 360s 709ms/step - loss: 0.0492 - accuracy: 0.9925 - val\_loss: 0.1212 - val\_accuracy: 0.9611  
Training on fold 3/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 360s 710ms/step - loss: 0.0102 - accuracy: 0.9996 - val\_loss: 0.0235 - val\_accuracy: 0.9944  
Training on fold 4/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 371s 731ms/step - loss: 0.0048 - accuracy: 0.9999 - val\_loss: 0.0097 - val\_accuracy: 1.0000  
Training on fold 5/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 366s 722ms/step - loss: 0.0031 - accuracy: 1.0000 - val\_loss: 0.0043 - val\_accuracy: 1.0000  
Training on fold 6/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 347s 684ms/step - loss: 0.0021 - accuracy: 1.0000 - val\_loss: 0.0039 - val\_accuracy: 1.0000  
Training on fold 7/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 349s 688ms/step - loss: 0.0016 - accuracy: 1.0000 - val\_loss: 0.0037 - val\_accuracy: 1.0000  
Training on fold 8/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 355s 700ms/step - loss: 0.0012 - accuracy: 1.0000 - val\_loss: 0.0027 - val\_accuracy: 1.0000  
Training on fold 9/10  
Number of training images: 16200  
Number of validation images: 180  
507/507 [=====] - 354s 699ms/step - loss: 8.8345e-04 - accuracy: 1.0000 - val\_loss: 0.0020 - val\_accuracy: 1.0000  
Training on fold 10/10  
Number of training images: 16200  
Number of validation images: 180

507/507 [=====] - 353s 696ms/step - loss: 6.7553e-04 - accuracy: 1.0000 - val\_loss: 0.0017 - val\_accuracy: 1.0000

In [62]:

```
# Calculate av
```

1