ComfyWear Progress

Recap

Colorful dataset

- Contains 2,682 images
- Size of 600 x 400 pixels
- 10 Attributes
- Object Detection and Segmentation tasks

DeepFashion dataset

- Contains 6600 Images
- 13 Attributes
- Object Detection and Segmentation tasks

Soft-Biometric (UPAR)

5 epochs-Multiclasses

Baseline CNN

- AVG Training Loss: 0.1421
- AVG Validation Loss: 0.2038

MobileNet

- AVG Training Loss: 0.1592
- AVG Validation Loss: 0.1704
- Fast

Inception Resnet

- AVG Training Loss: 0.1535
- AVG Validation Loss: 0.1702
- Accuracy

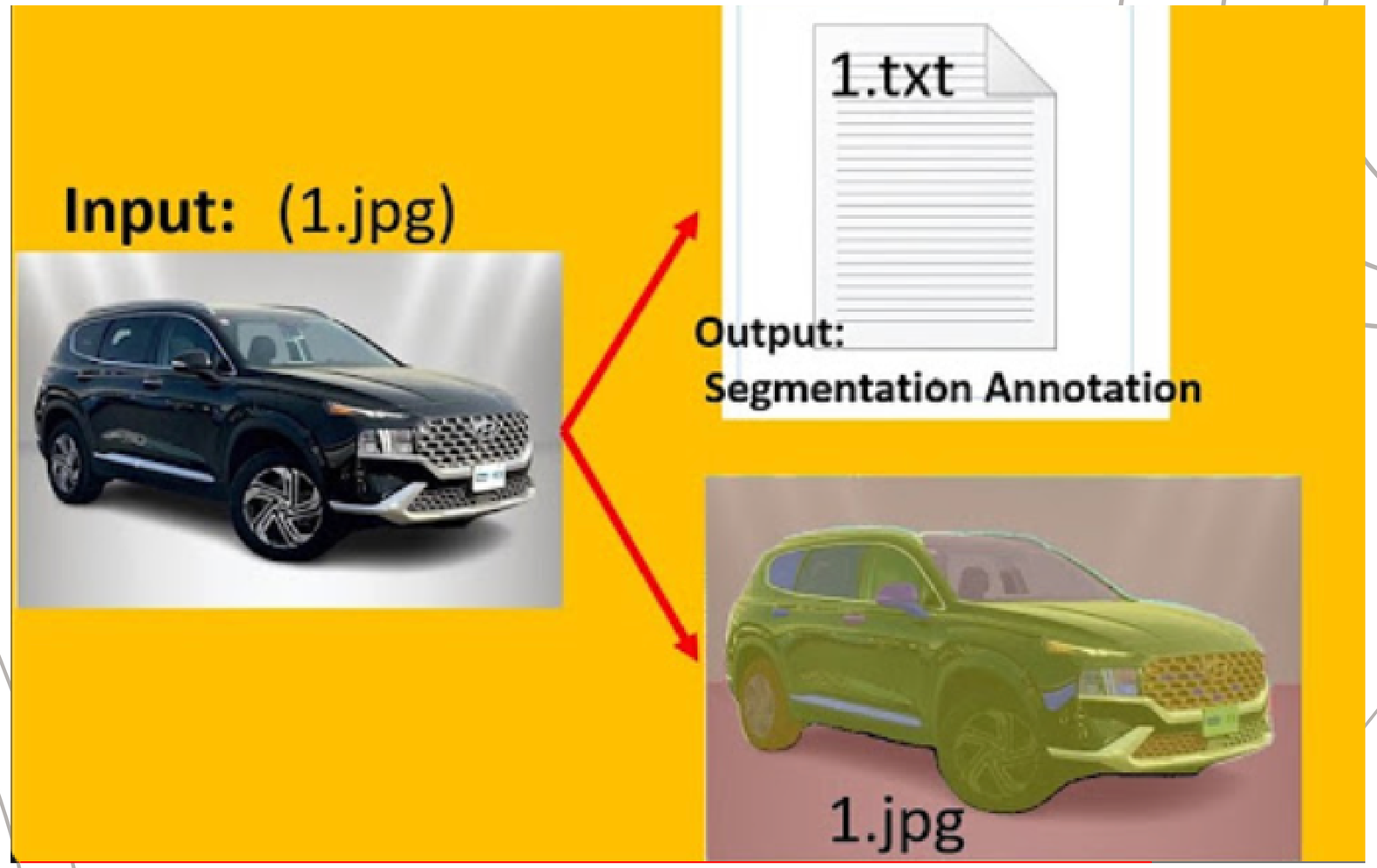
Yolov9


MAKE YOUR RIGHTS
16°C
long_sleeve_outwear 0.38
short_sleeve_top 0.81
long_sleeve_top
outwear 0.70
long_sleeve_outwe
trousers
trousers 0.87
sers 0.30
trousers 0.85

Roboflow


short sleeve top
long sleeve
long sleeve outwea
trousers 59%
s 79%
trousers 60%

SAM's Problem



ThermalWear

A project that detects clothing styles in images and predicts the comfort level of people based on their clothes, local temperature, and local humidity. It also provides data-driven advice to help people dress comfortably. Plus, it can also integrate the data from user feedback to enhance future predictions as well.

Feedback

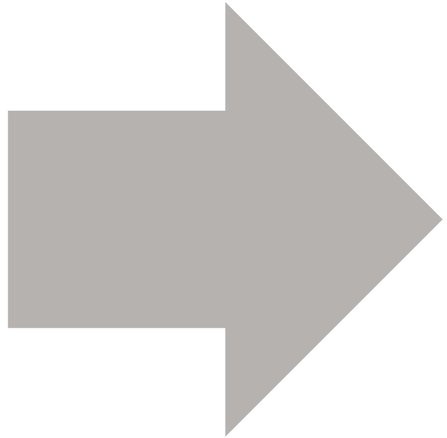
- Body temperature doesn't vary to the environment.
- Change the way we collect the data.

Today’s topic

Projects

ThermalWear

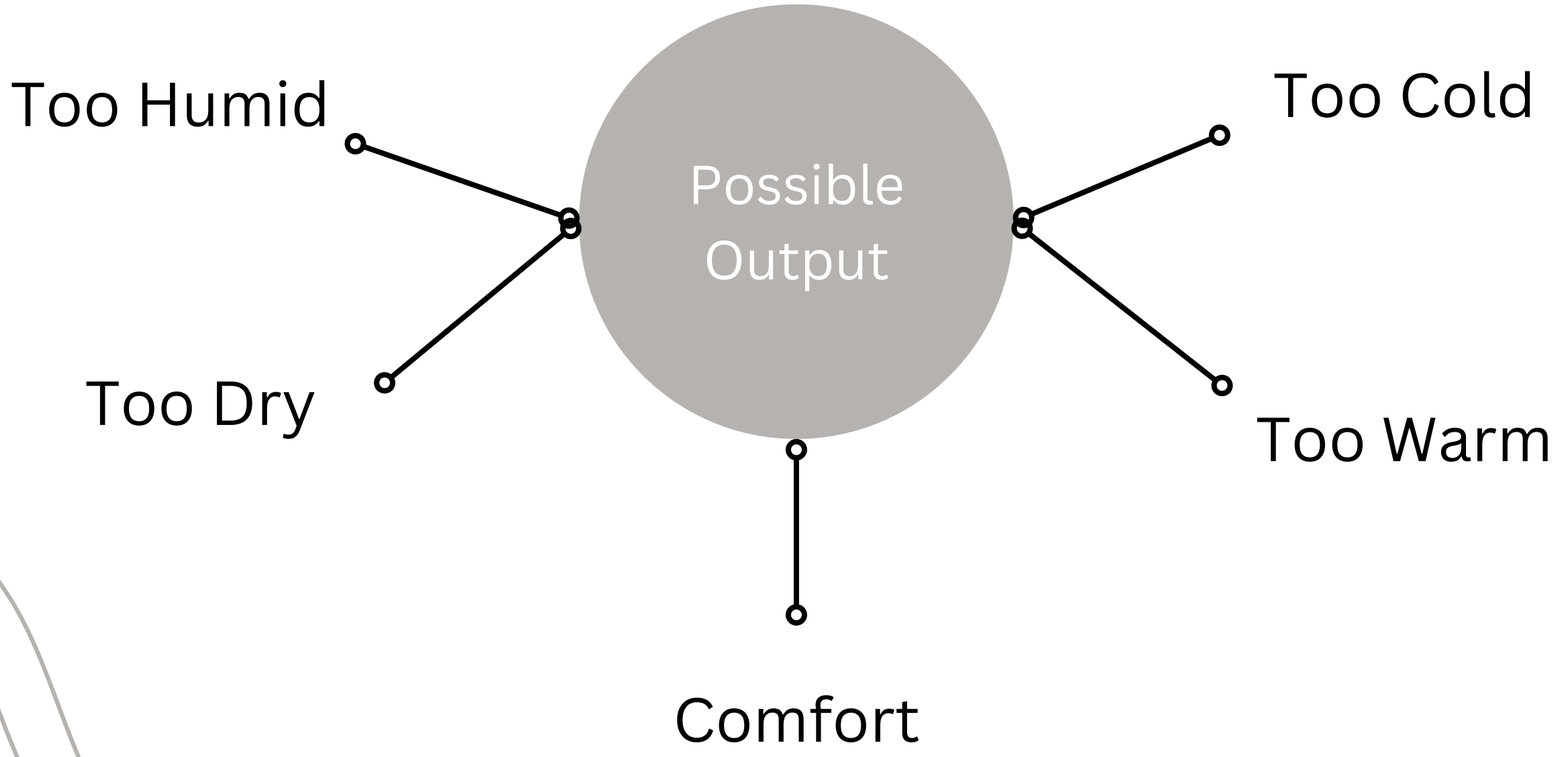
Clothing Style (Type + Color)
+
Local Temperature
+
Local Humidity
=
People’s body temperature



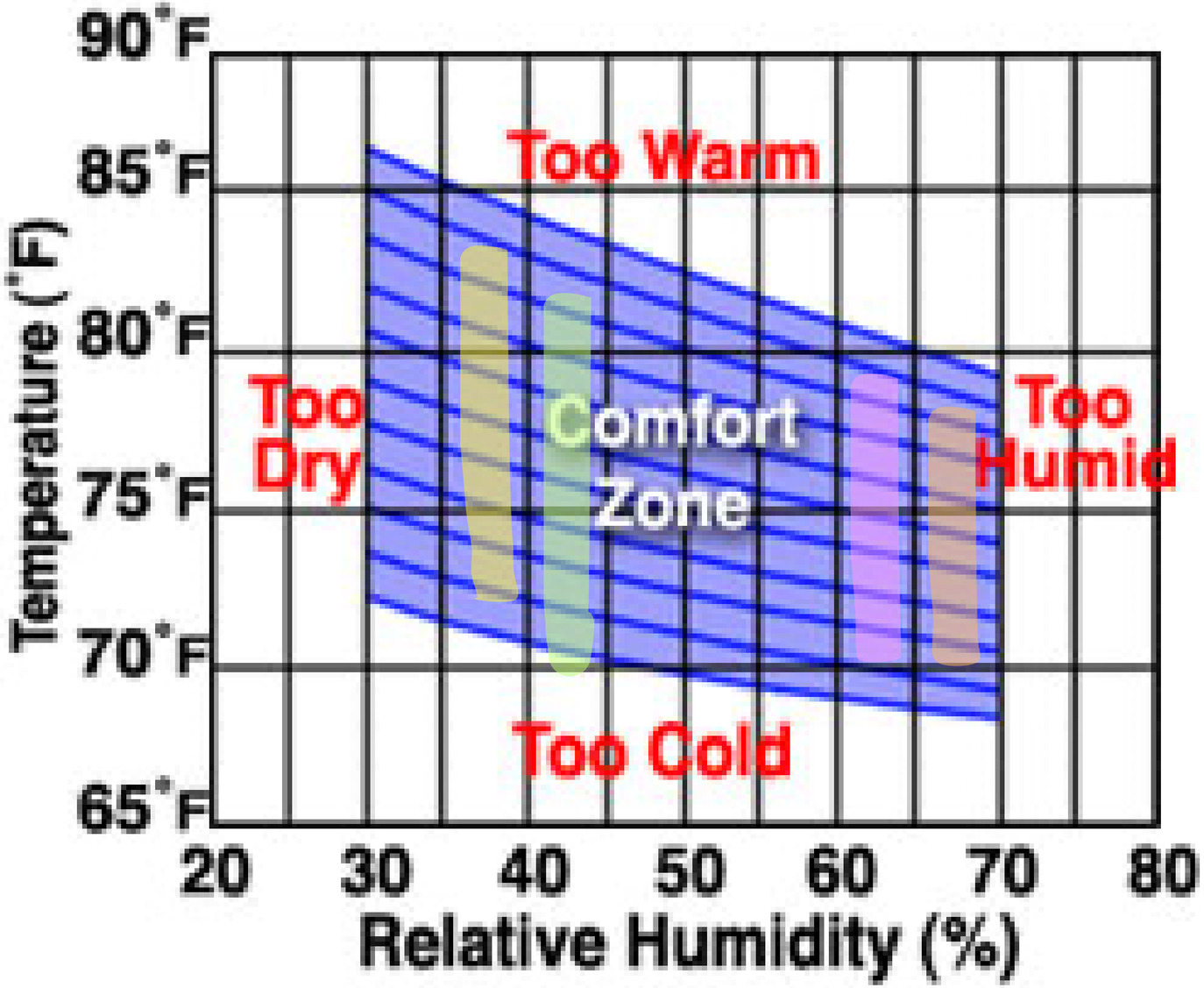
ComfyWear

Clothing Style (Type only)
+
Local Temperature
+
Local Humidity
=
Comfort

What is comfort?



What is comfort?



Depends on the model / Collected data

- Cloth 1
- Cloth 2
- Cloth 3
- Cloth 4

Colorful Fashion Dataset

Colorful Fashion Dataset

Attributes (10)

- sunglass
- hat
- jacket
- shirt
- pants
- shorts
- skirt
- dress
- bag
- shoe

Colorful dataset

- Contains 2,682 images
- Size of 600 x 400 pixels
- 10 Attributes
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DeepFashion dataset

- Contains 6600 Images
- 13 Attributes
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Performance

	PREDICTED CLASS		
ACTUAL CLASS		Class=Yes	Class=No
	Class=Yes	a (TP)	b (FN)
	Class=No	c (FP)	d (TN)

Precision:
(False Positives)

$$\frac{a}{a+c} = \frac{TP}{TP+FP}$$

Recall:
(False Negatives)

$$\frac{a}{a+b} = \frac{TP}{TP+FN}$$

		PREDICTED CLASS	
		Class=Yes	Class=No
ACTUAL CLASS	Class=Yes	a (TP)	b (FN)
	Class=No	c (FP)	d (TN)

F-measure:
(Precision, Recall)

$$\frac{2rp}{r+p} = \frac{2a}{2a+b+c}$$

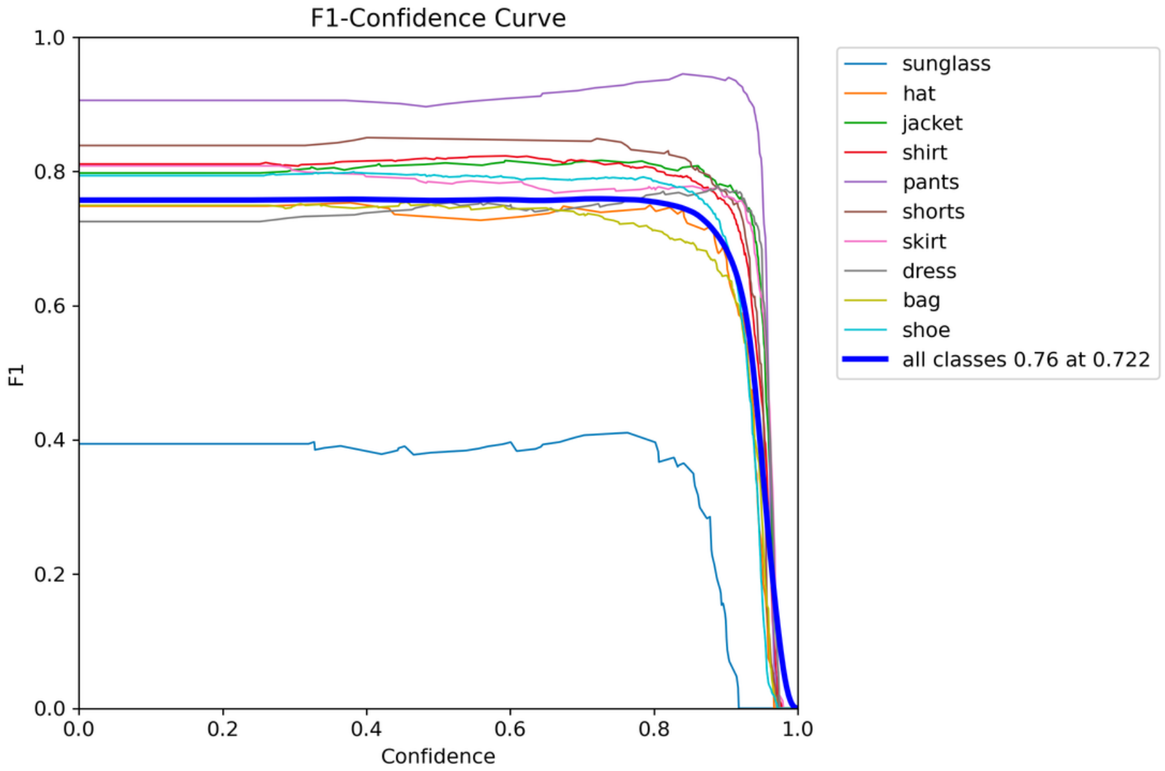
Performance

Colorful dataset

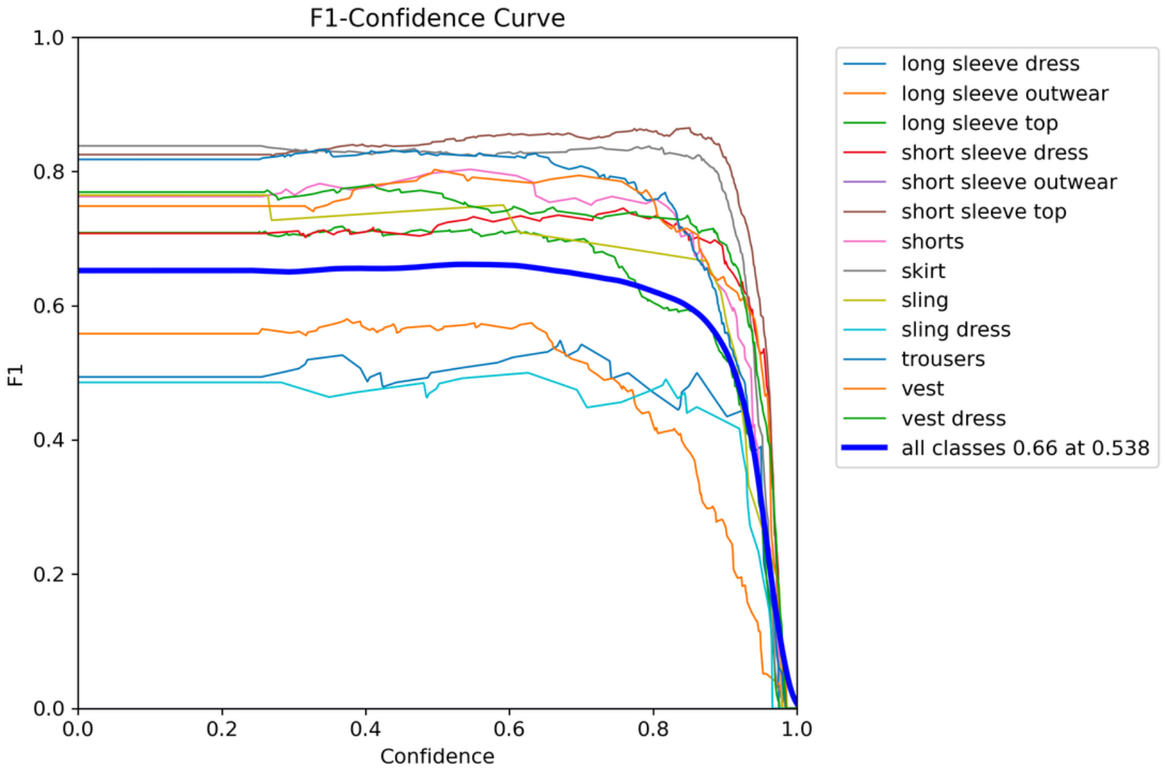
DeepFashion dataset

F1-Confidence Curve

Colorful

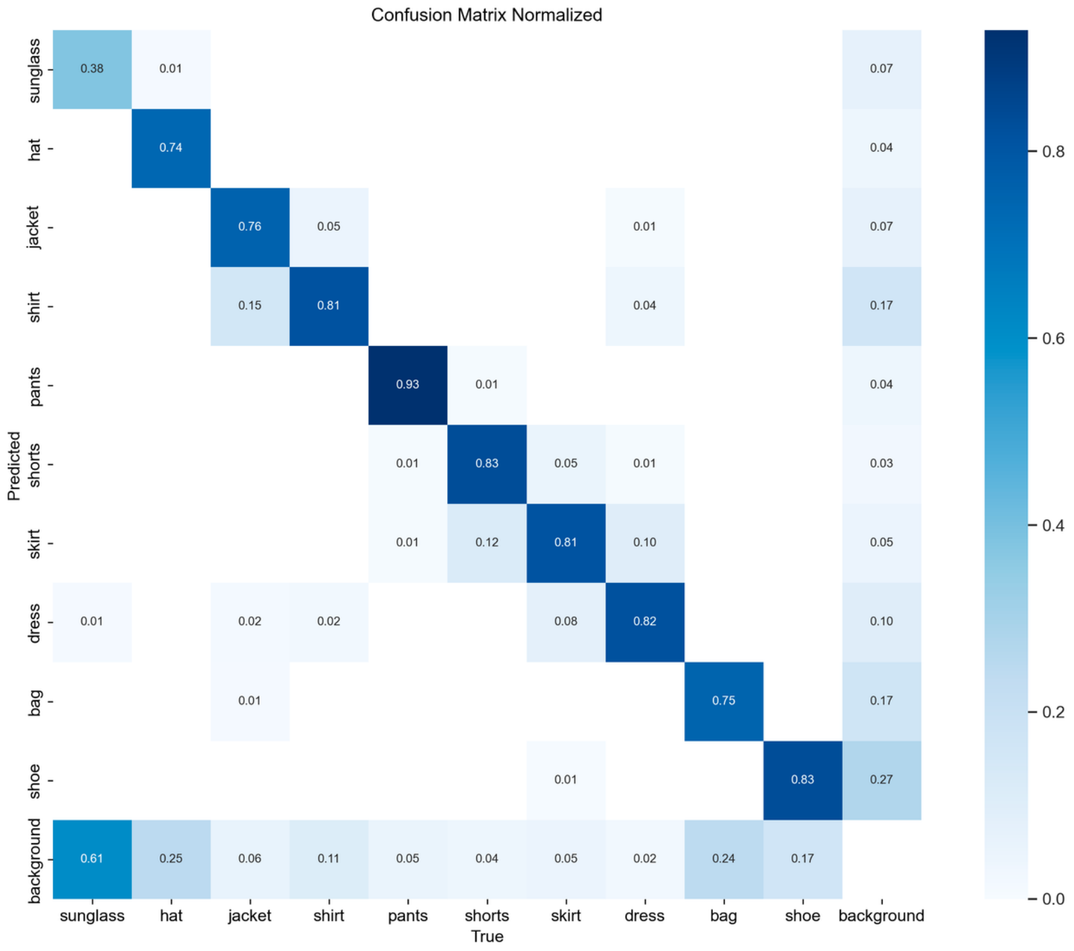


Deepfashion2

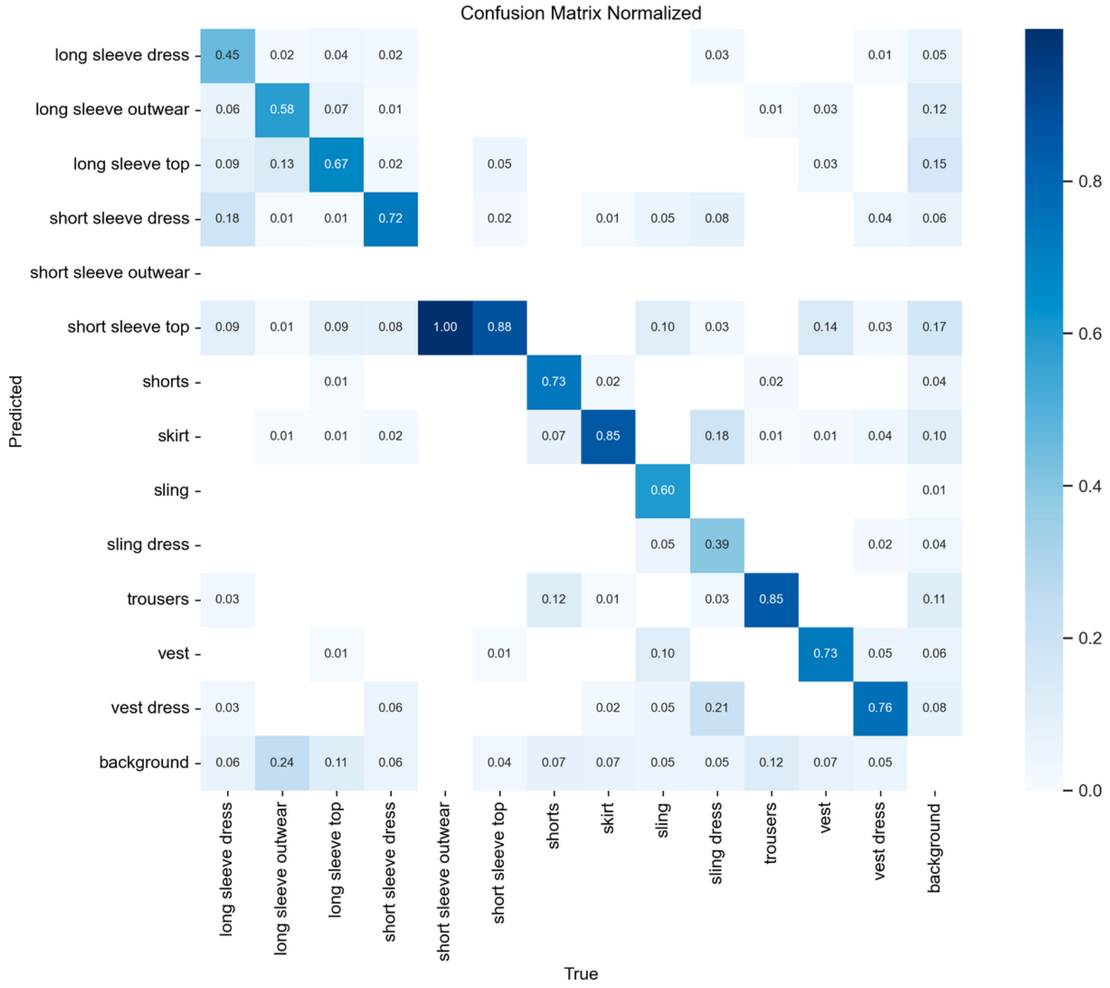


Confusion Matrix

Colorful



Deepfashion2



Confusion Matrix

Colorful

Below 50% attributes:

- **Sunglass (38%)**

Deepfashion2

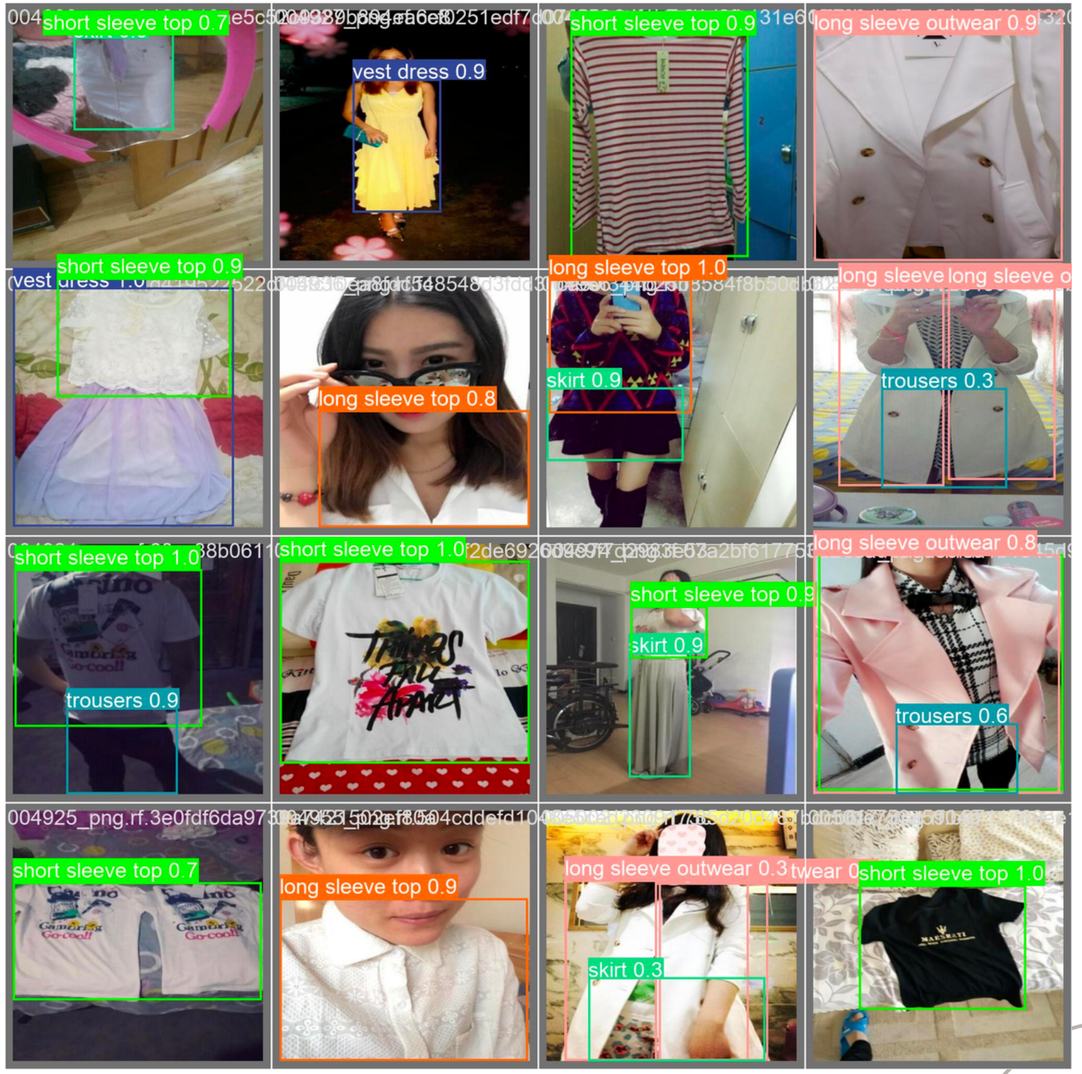
Below 50% attributes:

- **Long Sleeve Dress (45%)**
- **Short Sleeve Outwear (0%)**
- **SlingDress (39%)**

Example

Colorful

Deepfashion2

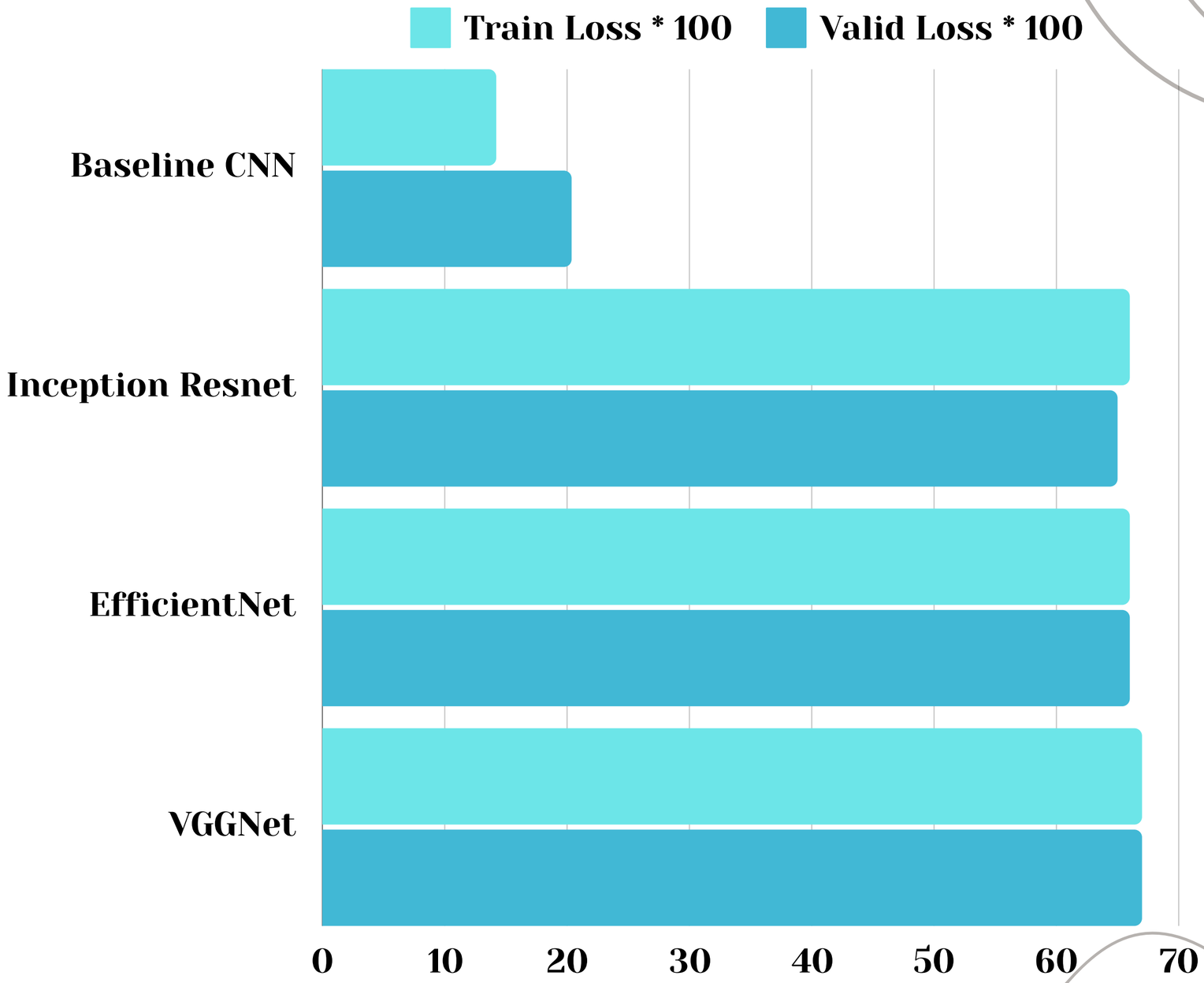


Soft-biometric Classification

Soft-Biometric (UPAR)

20 epochs-MultiLabels

BCEWithLogitsLoss():
Sigmoid + BCELoss



SAM

Put everything together
(Except soft-biometric)

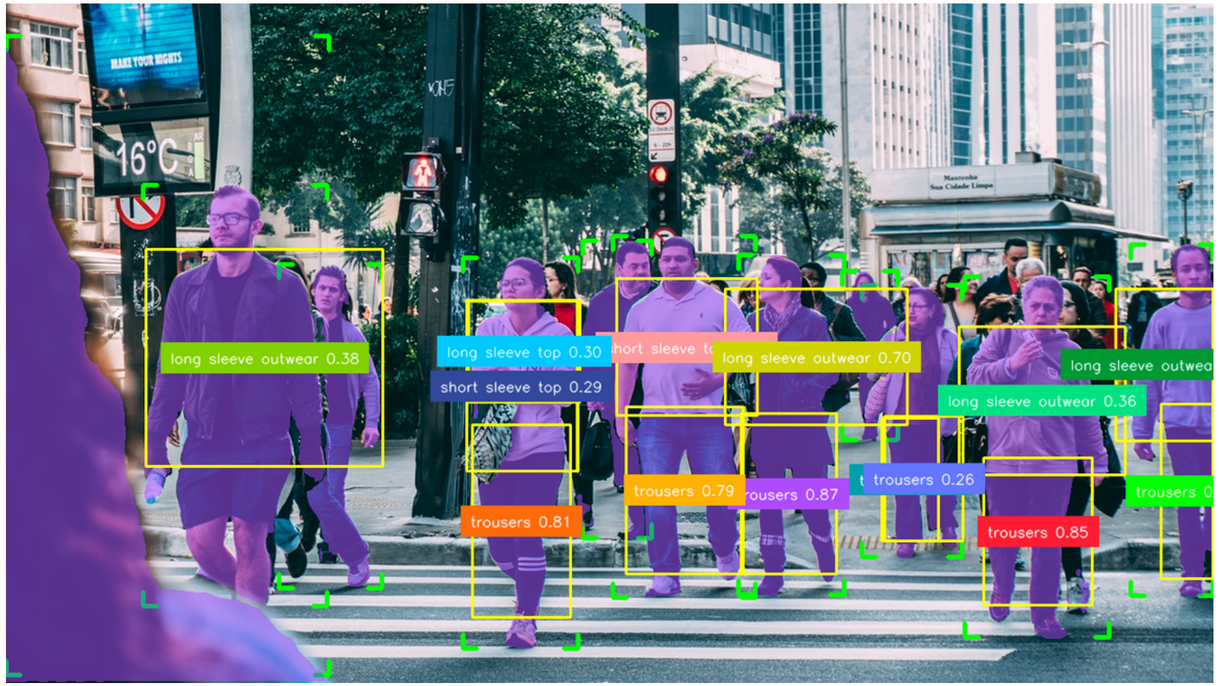
Actual Prediction

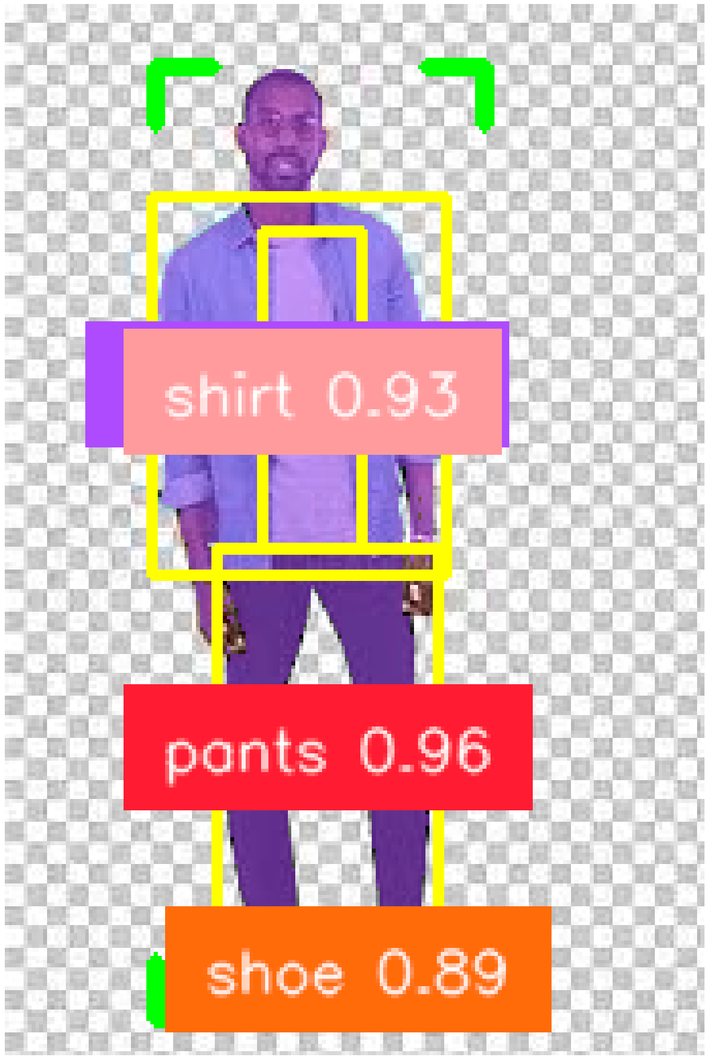
Colorful dataset

DeepFashion dataset


MAKE YOUR NIGHTS
16°C
Mantenha
Sua Cidade Limpa


jacket 0.77
dress 0.62
shirt 0.73
shirt 0.88
pants 0.86
pants 0.80
shirt 0.29


long sleeve outwear 0.38
long sleeve top 0.30
short sleeve top 0.29
long sleeve outwear 0.70
long sleeve outwear 0.36
trousers 0.79
trousers 0.81
trousers 0.26
trousers 0.85


shirt 0.93
pants 0.96
shoe 0.89

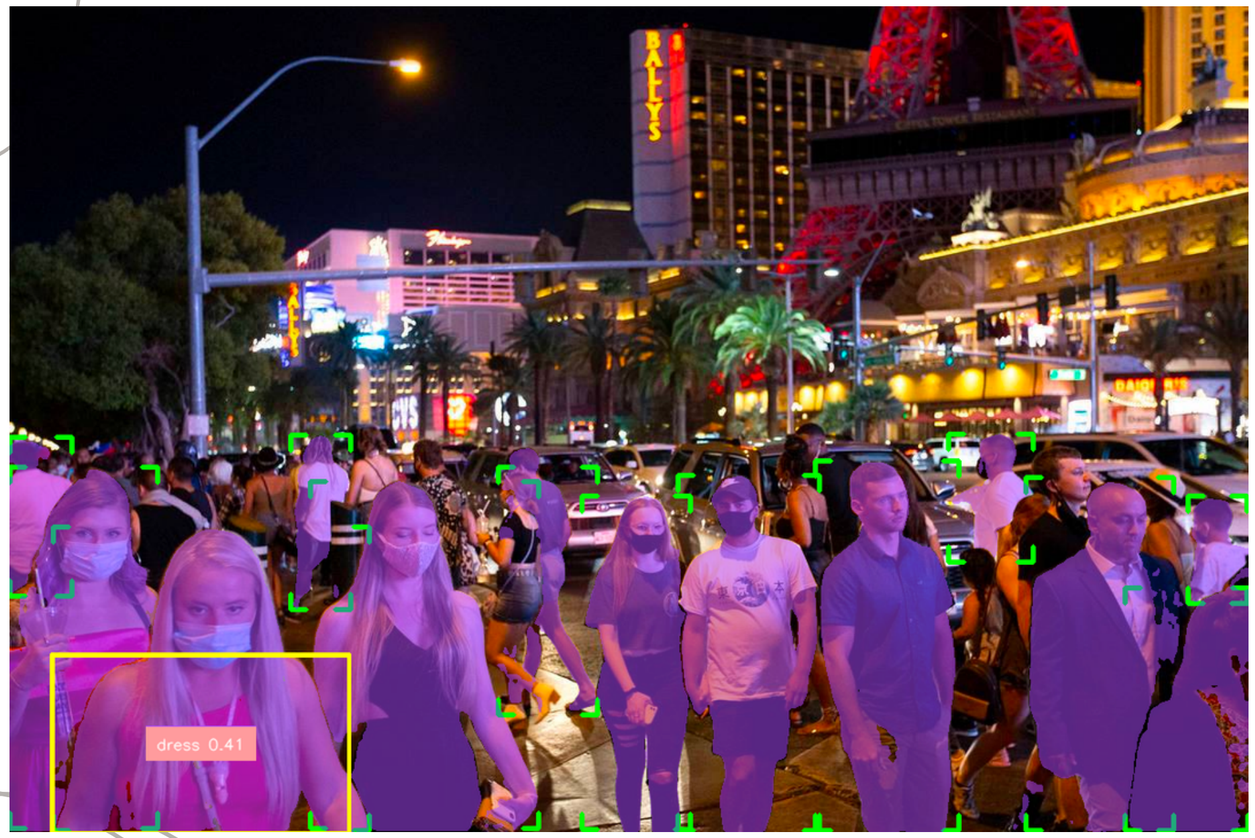

sleeve outwear 0.77
trousers 0.91

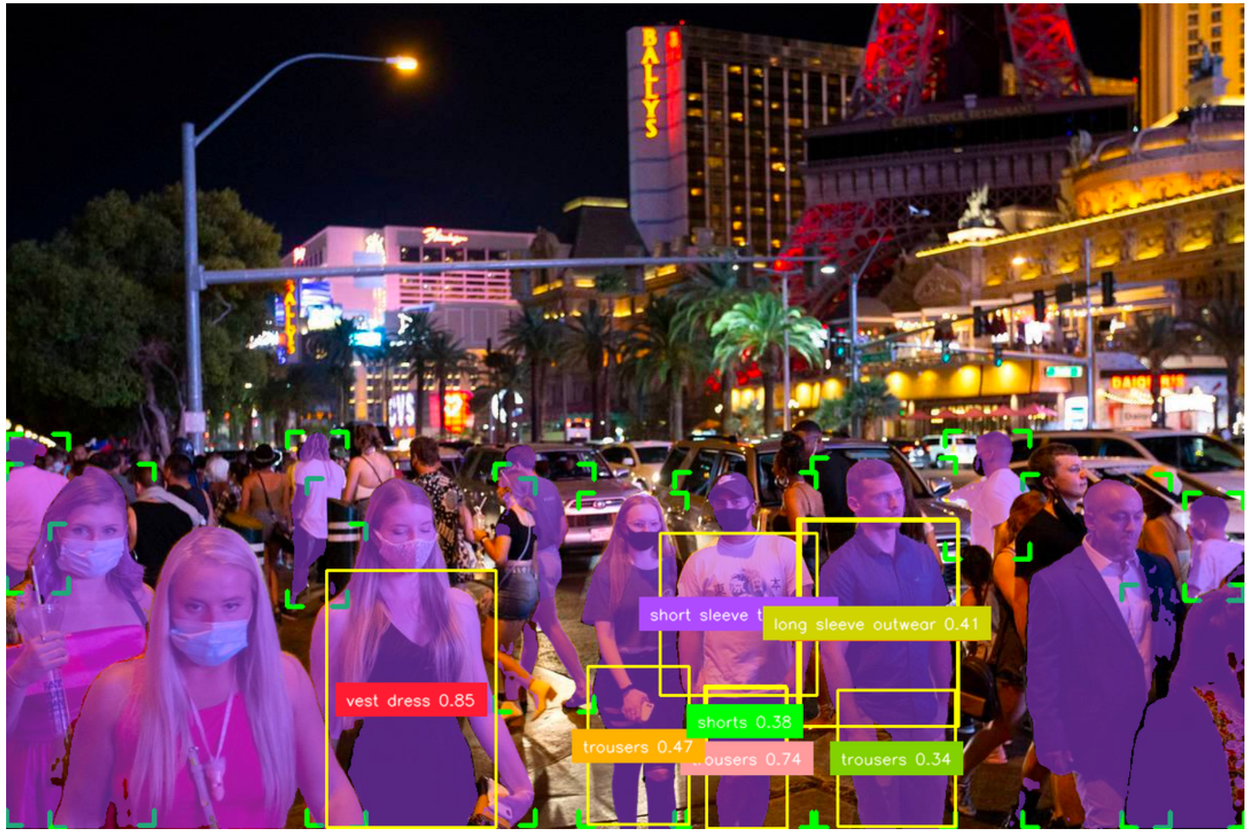

shirt 0.71
shirt 0.80
shirt 0.91
pants 0.37
shoe 0.72
shoe 0.74
shoe 0.25

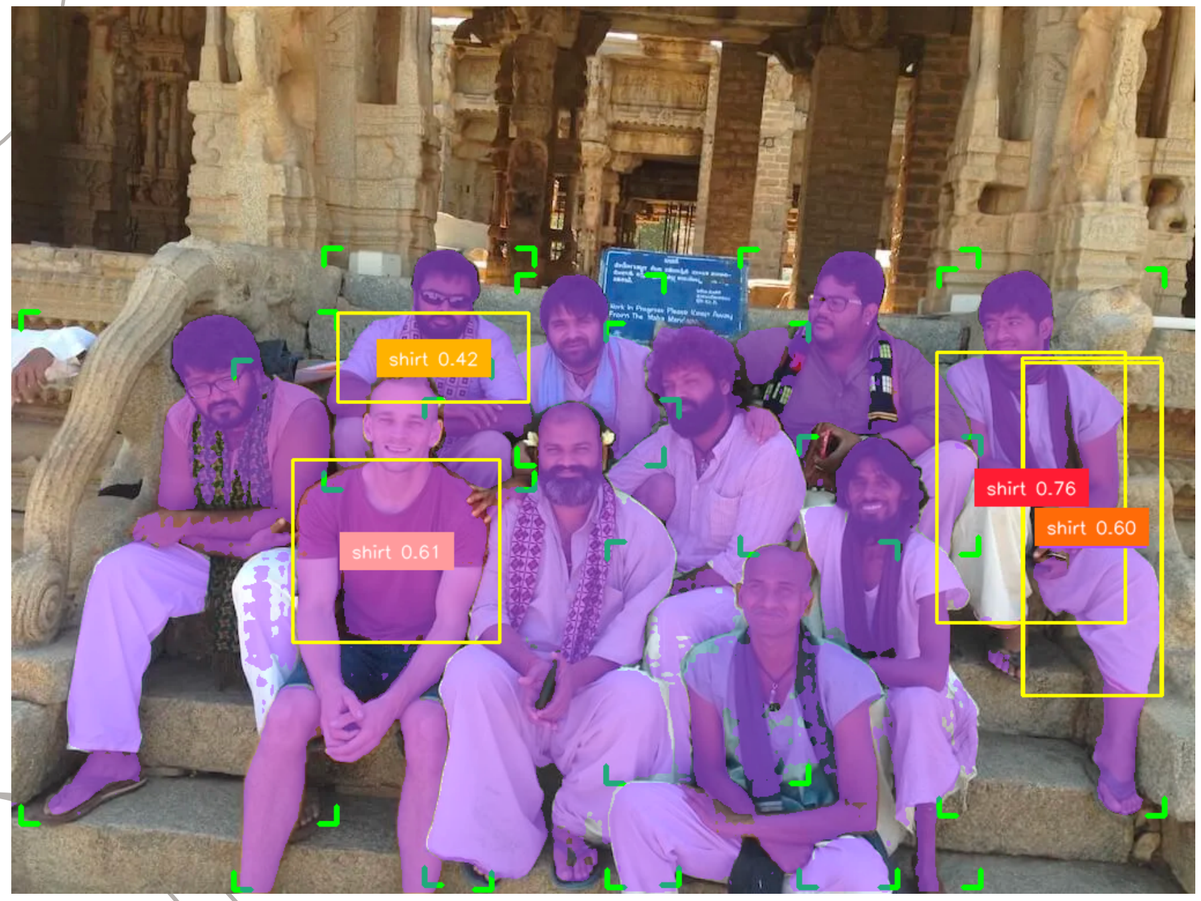

long sleeve top 0.64
long sleeve outwear 0.32
shorts 0.58
trousers 0.37
trousers 0.36
trousers 0.66
trousers 0.80
short sleeve top 0.84
short sleeve top 0.81
shorts 0.57
shorts 0.80
trousers 0.69
shorts 0.66
short sleeve top 0.56
long sleeve outwear 0.54
short sleeve top 0.43
trousers 0.44

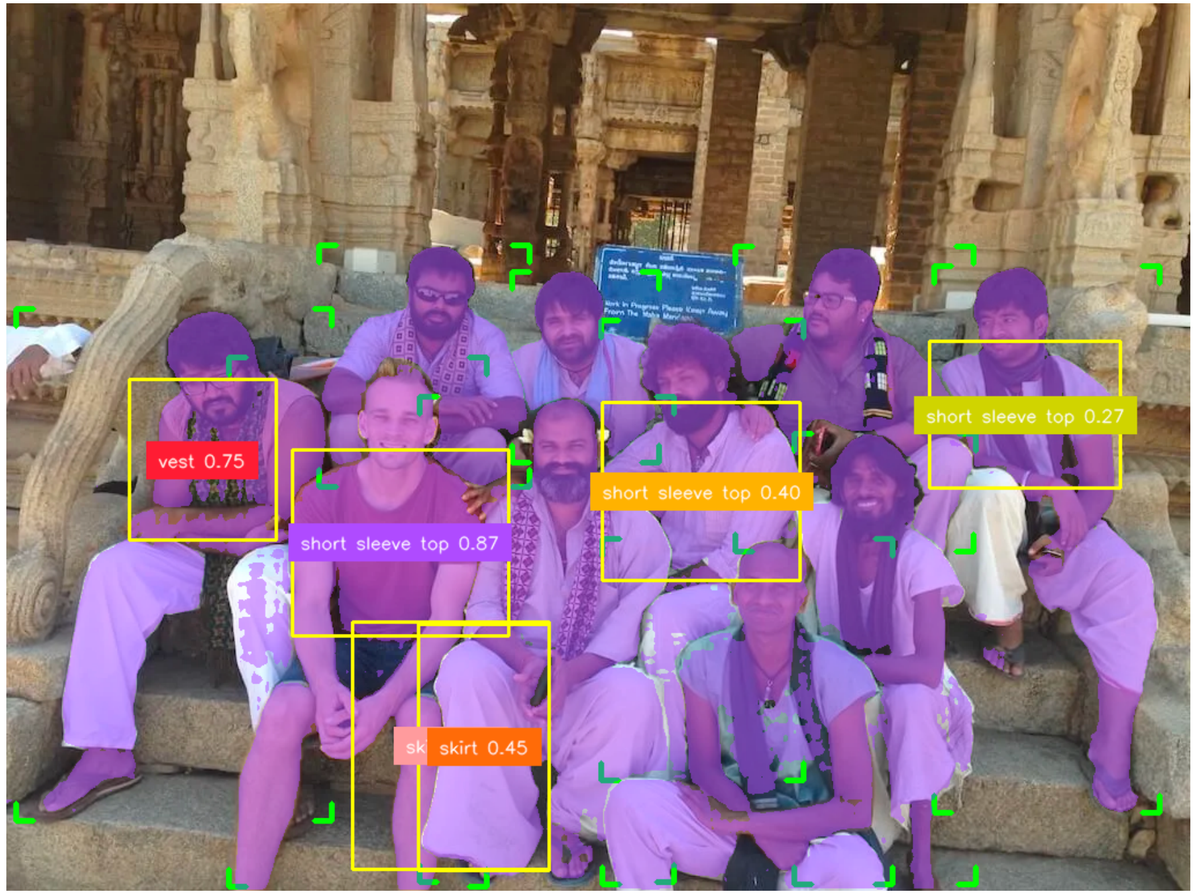

jacket 0.94
pants 0.94
shoe 0.90
ROX
alamy
Image ID: JEGAT2
www.alamy.com


long sleeve outwear 0.61
long sleeve outwear 0.74
long sleeve outwear 0.34
long sleeve top 0.81
trousers 0.81
trousers 0.59
trousers 0.67
trousers 0.79
trousers 0.88
ROX
alamy
Image ID: JEGAT2
www.alamy.com


dress 0.41


vest dress 0.85
long sleeve outwear 0.41
shorts 0.38
trousers 0.47
trousers 0.34

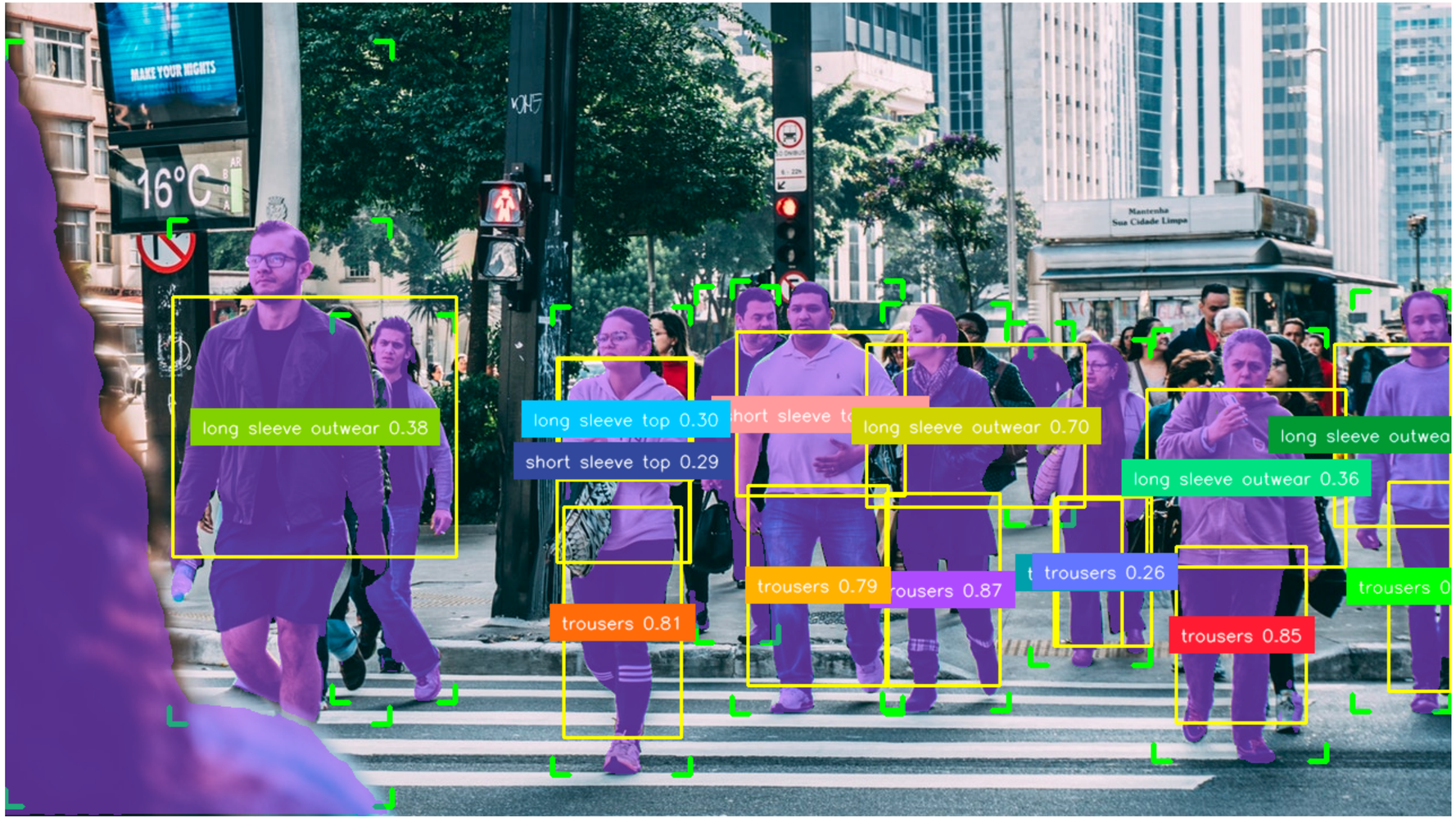

shirt 0.42
shirt 0.61
shirt 0.76
shirt 0.60

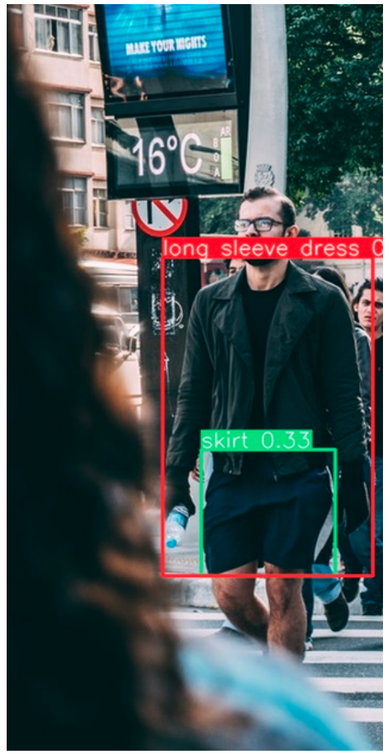

vest 0.75
short sleeve top 0.87
short sleeve top 0.40
short sleeve top 0.27
skirt 0.45

What if we cropped the image first?

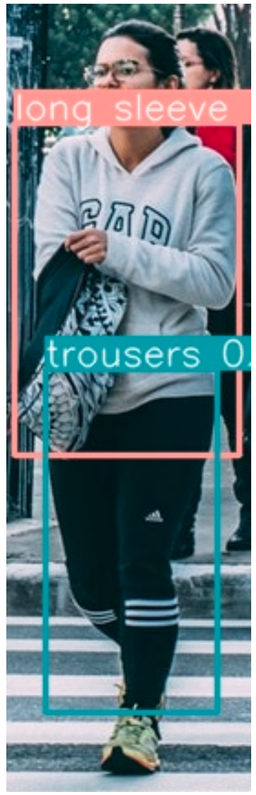
Deep Fashion2


MAKE YOUR NIGHTS
16°C
Mantenha
Sua Cidade Limpa


MAKE YOUR NIGHTS
16°C
long sleeve outwear 0.38
long sleeve top 0.30
short sleeve top 0.29
long sleeve outwear 0.70
long sleeve outwear 0.36
trousers 0.79
trousers 0.87
trousers 0.26
trousers 0.81
trousers 0.85


MAKE YOUR RIGHTS
16°C
long sleeve dress
skirt 0.33

2


long sleeve
trousers

2


long sleeve
long sleeve
skirt 0.90

3


long sleeve top
trousers 0.93

2


long sleeve
trousers

2

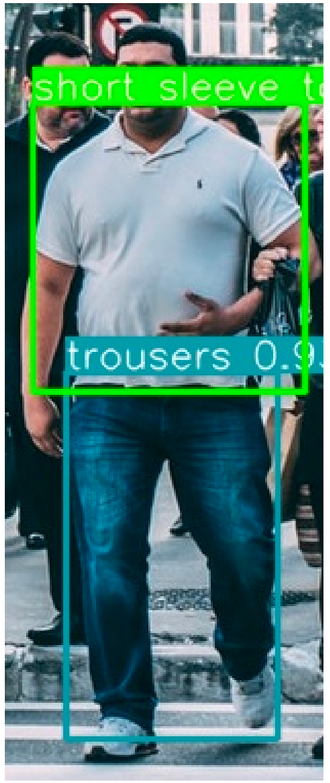

long sleeve
skirt 0.83

2


long sleeve
trousers

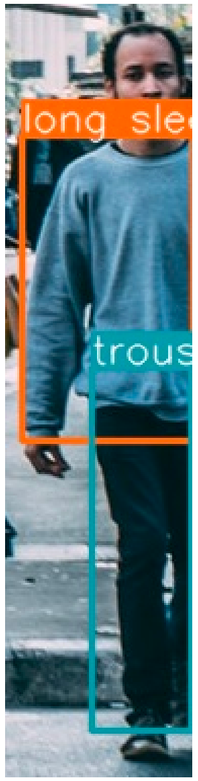
3

3


short sleeve
trousers

2

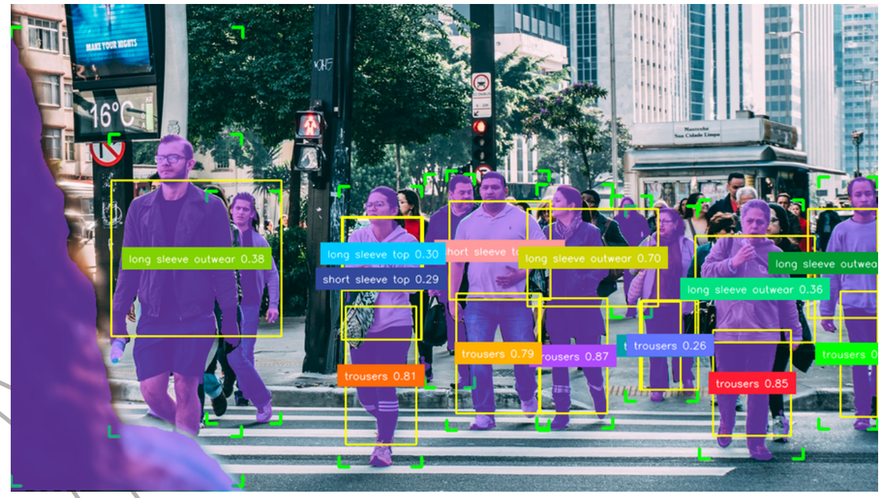
1


long sle
trous

2

Number of Prediction

14



24

2 2 3 2 2

2 3 3 2 1 2

Colorful Fashion


MAKE YOUR NIGHTS
16°C
Mantenha
Sua Cidade Limpa


MAKE YOUR NIGHTS
16°C
jacket 0.77
dress 0.62
shirt 0.73
shirt 0.88
pants 0.86
shirt 0.29
pants 0.80


MAKE YOUR RIGHTS
16°C
jacket 0.92

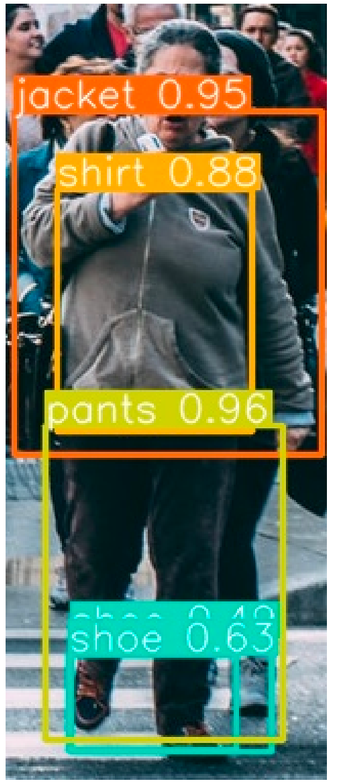
2


jacket 0.90
bag 0.94

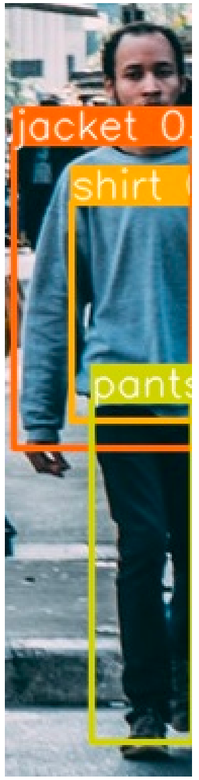
3


shirt 0.96
pants 0.94

2


jacket 0.95
shirt 0.88
pants 0.96
shoe 0.63

4


shirt

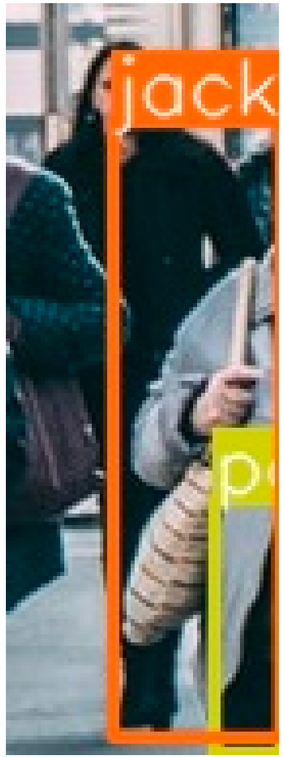
3


jacket 0.94
shirt 0.
pants 0.95
shoe 0.55

4


shir
bag
pant

3


jack

3


jacket 0.57
bag 0.62
pants 0.9
shoe 0.95

4


jacket 0.9
shirt 0.
pants 0
shoe 0

4

Number of Prediction

8

32


2


3


2


4


3


4


3


3


4


4

Next ML goal