

# Face Detection on Daturks Dataset through Mask R-CNN training

## Dataset:

The dataset is [freely available in the public domain](#). It is provided by [Daturks](#), and it is hosted on [Kaggle](#). Faces in images marked with bounding boxes. Have around **500 images** with around **1100 faces** manually tagged via bounding box. Some sample images -

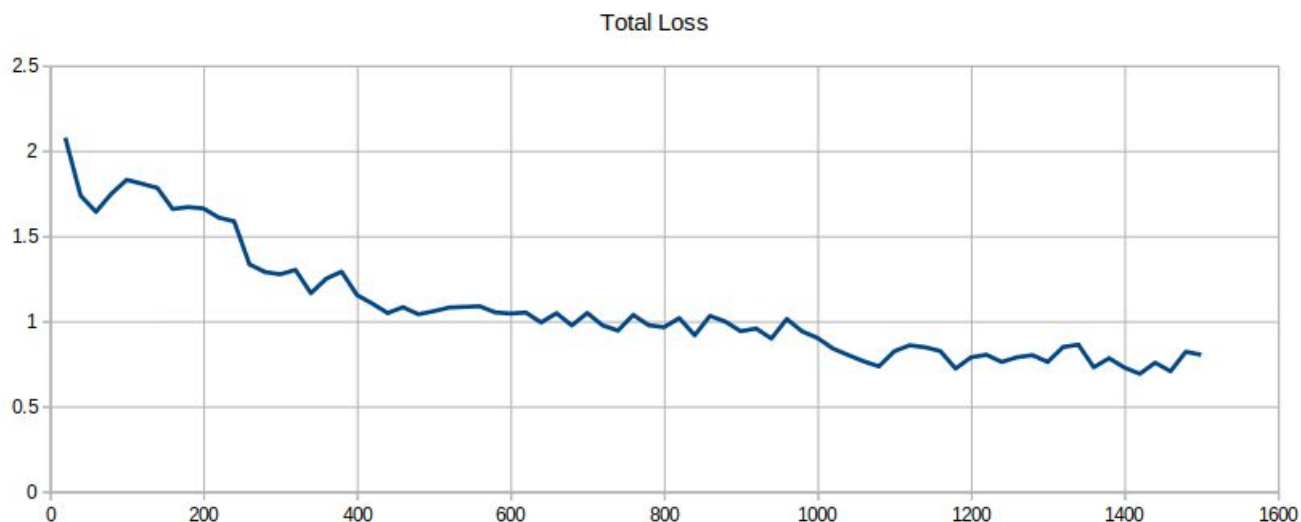
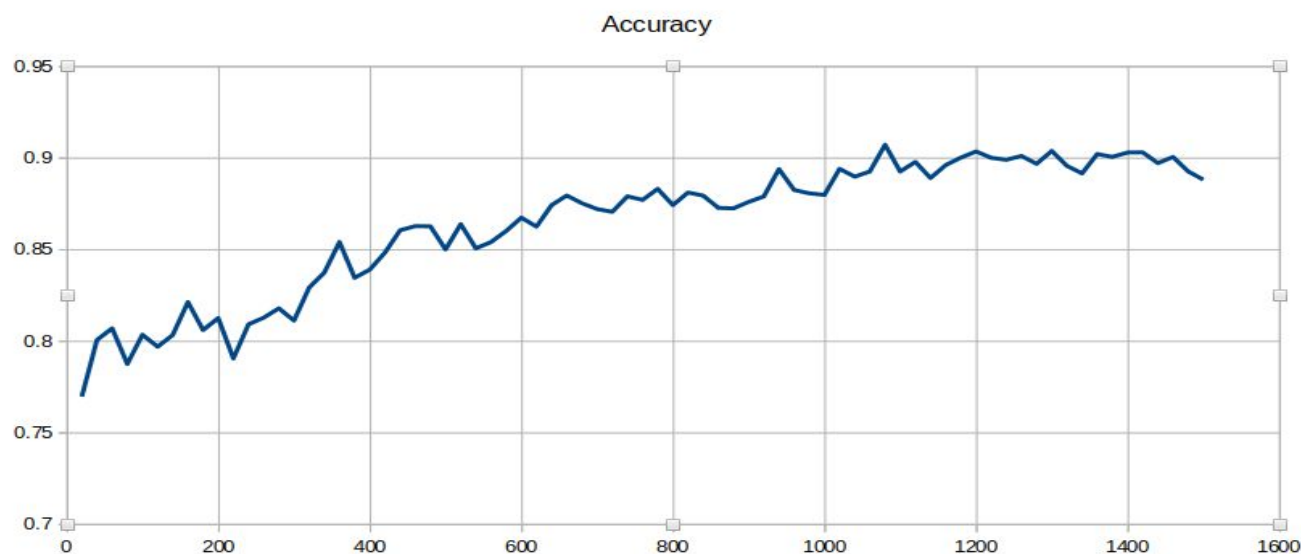


## Framework:

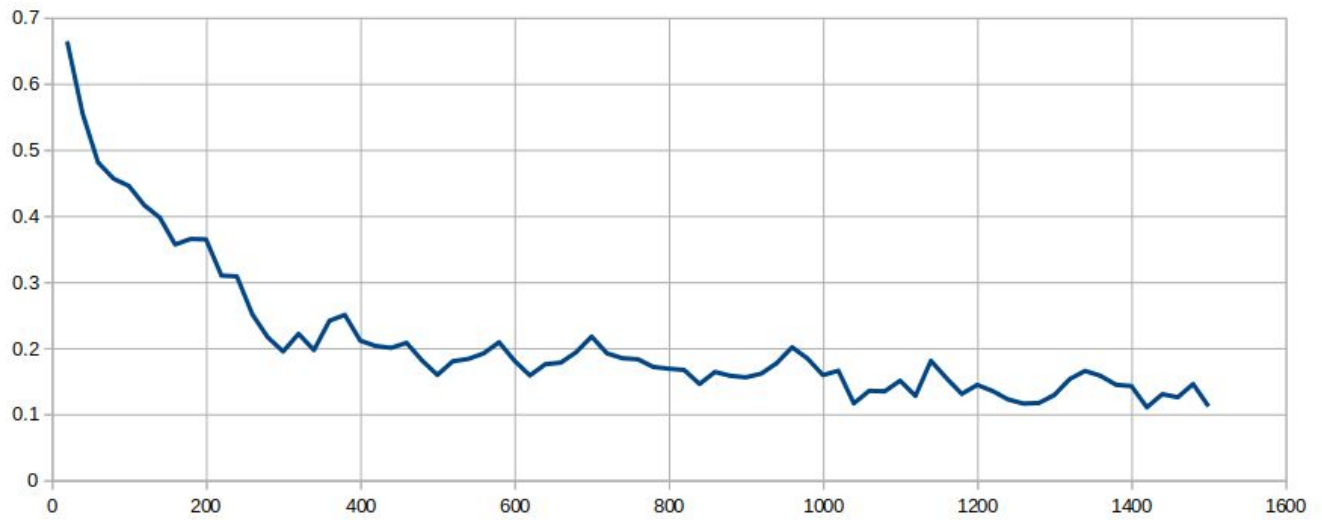
[Detectron2](#) is a framework for building state-of-the-art object detection and image segmentation models. It is developed by the Facebook Research team. I have used the [Mask R-CNN X101-FPN](#) model. It is pre-trained on the [COCO dataset](#) and achieves very good performance. The downside is that it is slow to train.

## Training:

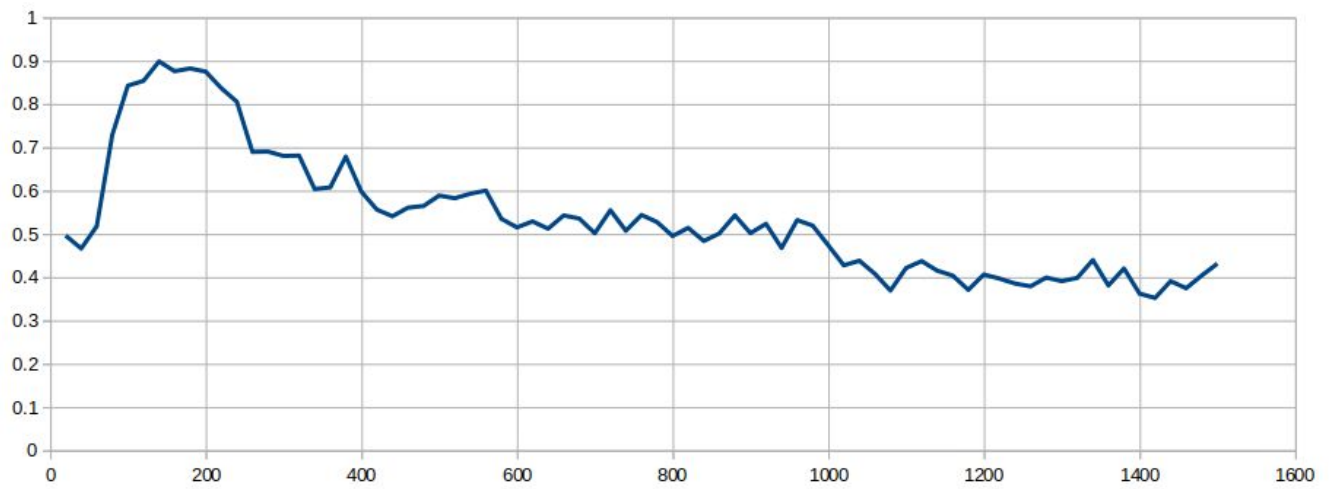
I have trained the model for more 500 iterations and got those training metrics.



Class Loss



Bounding Box Regression Loss





# Test Results:

- 21 images, 67 Faces (5% of the whole dataset)

Average Precision	(AP)	@[ IoU=0.50:0.95	area= all	maxDets=100	= 0.229
Average Precision	(AP)	@[ IoU=0.50	area= all	maxDets=100	= 0.513
Average Precision	(AP)	@[ IoU=0.75	area= all	maxDets=100	= 0.162
Average Precision	(AP)	@[ IoU=0.50:0.95	area= small	maxDets=100	= -1.000
Average Precision	(AP)	@[ IoU=0.50:0.95	area=medium	maxDets=100	= 0.251
Average Precision	(AP)	@[ IoU=0.50:0.95	area= large	maxDets=100	= 0.238
Average Recall	(AR)	@[ IoU=0.50:0.95	area= all	maxDets= 1	= 0.113
Average Recall	(AR)	@[ IoU=0.50:0.95	area= all	maxDets= 10	= 0.458
Average Recall	(AR)	@[ IoU=0.50:0.95	area= all	maxDets=100	= 0.479
Average Recall	(AR)	@[ IoU=0.50:0.95	area= small	maxDets=100	= -1.000
Average Recall	(AR)	@[ IoU=0.50:0.95	area=medium	maxDets=100	= 0.600
Average Recall	(AR)	@[ IoU=0.50:0.95	area= large	maxDets=100	= 0.444

AP	AP50	AP75	APs	APm	APl
:-----:	:-----:	:-----:	:-----:	:-----:	:-----:
22.854	51.324	16.235	nan	25.145	23.786

# Annotated Results on Test-set:

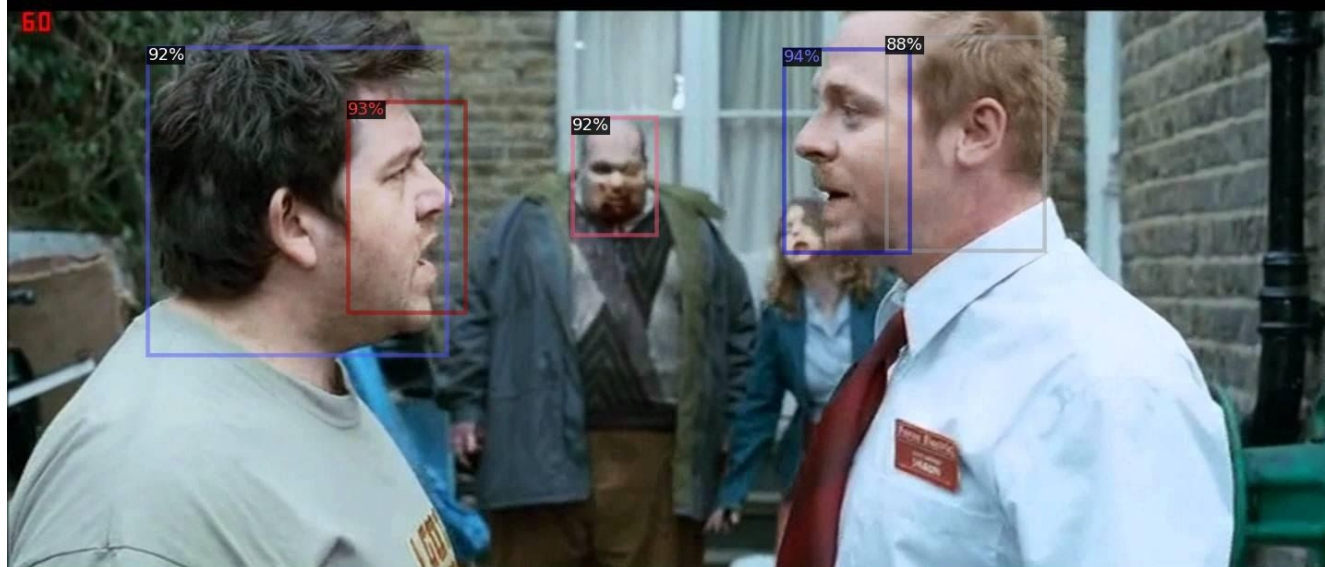
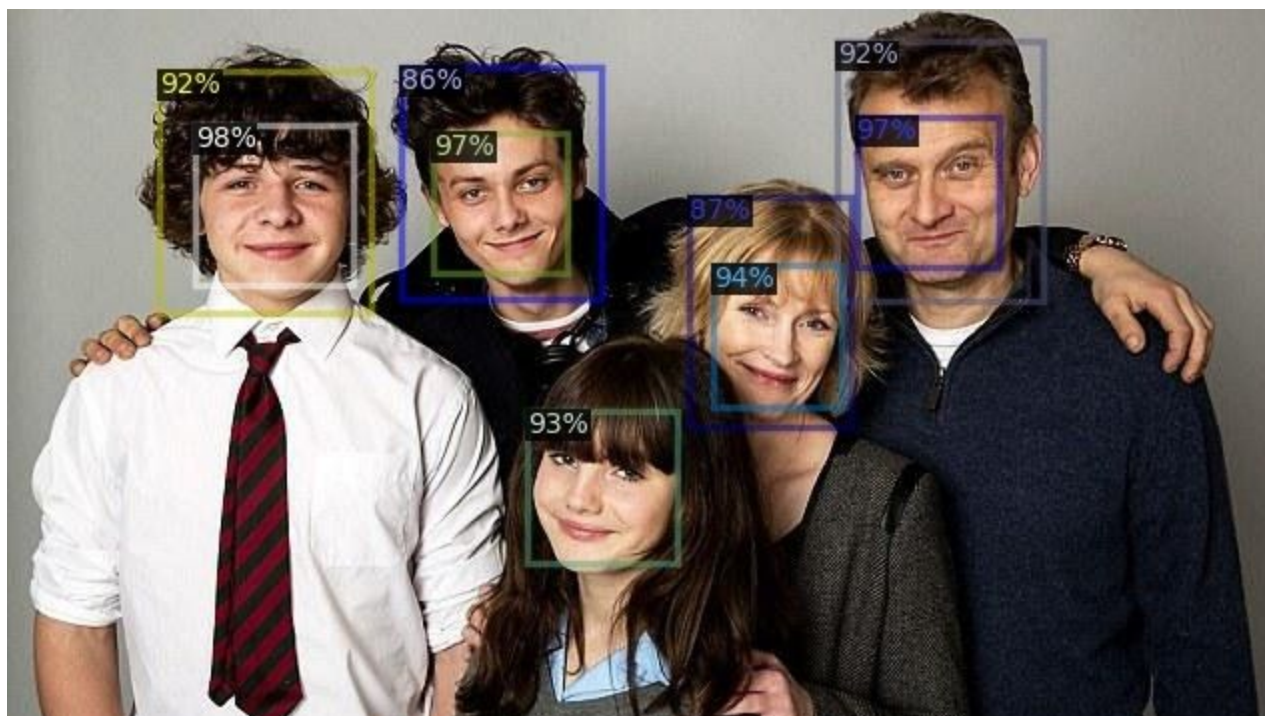












## Query:

I have some more public datasets for face recognition. Can you please help me choose the best-fit dataset for our motive? I am attaching the details and the samples of those datasets.

1. **Wider Face**: 32,203 images and label 393,703 faces with a high degree of variability in scale, pose, and occlusion. [Sample Images](#)
2. **Unconstrained Face Detection Dataset**: 6424 images with 10895 face annotations that involve these issues such as weather-based degradations, motion blur, focus blur, and several others. [Sample Images](#)
3. **Multi-Attribute Labelled Faces**: 5,250 images with 11,931 annotated faces collected from the Internet. Those annotations contain other facial attributes: gender(female, male, unknown), isWearingGlasses, isOccluded and isExaggeratedExpression. [Sample Images](#)