

How to build a real-time AI face mask detector

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Sydney Informatics Hub



COVID-19 and face masks



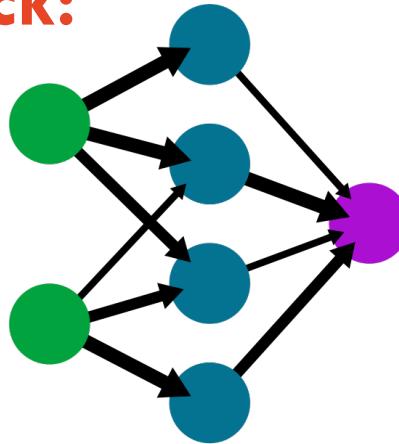
COVID-19 and face masks



Try it here!!!



Face Mask AI Starter Pack:



YOLO



Transfer Learning

Transfer Learning



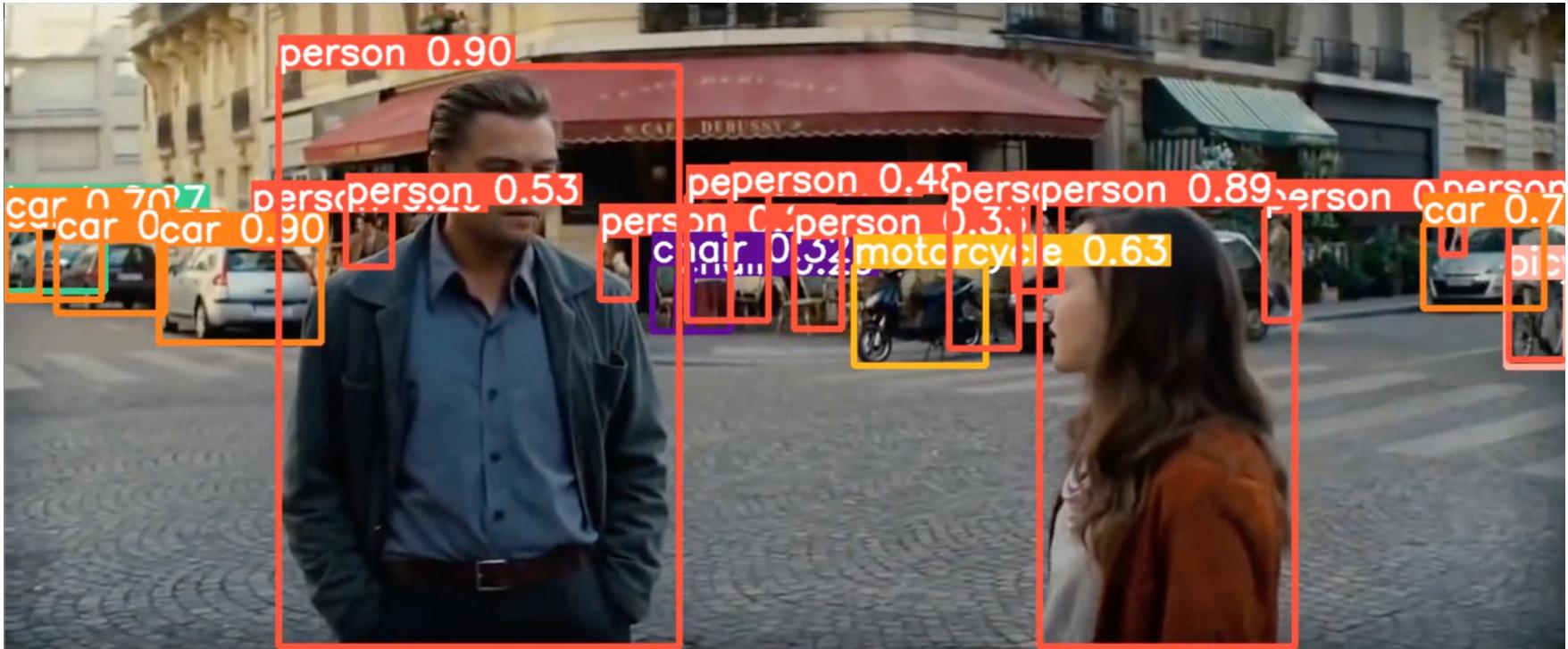
Transfer Learning



How good are pretrained models?



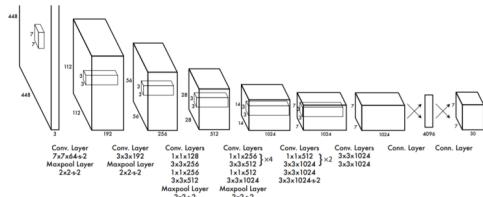
Pretty good!



Fine tuning pre trained models



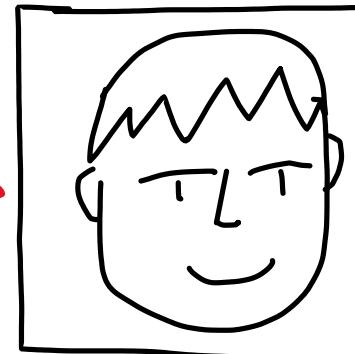
YOLO



J Redmon et al 2016



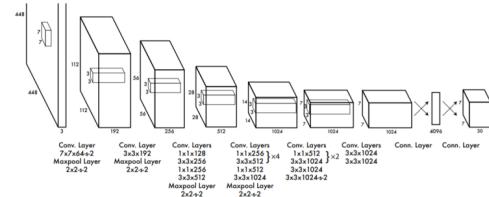
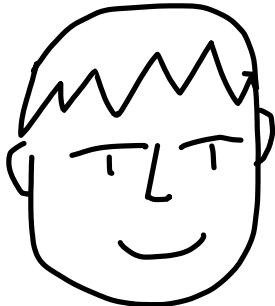
no mask



mask



What does a model look like?

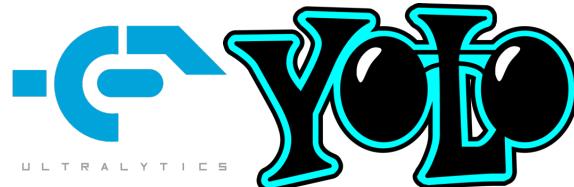
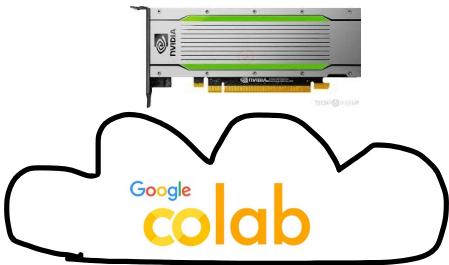


85%
no mask

Which looks like this if you expand it...



Recipe



Are you wearing a mask?

Detecting masked and unmasked faces with YOLOv5. Take a picture, upload an image, or click an example image to use.

Original Image



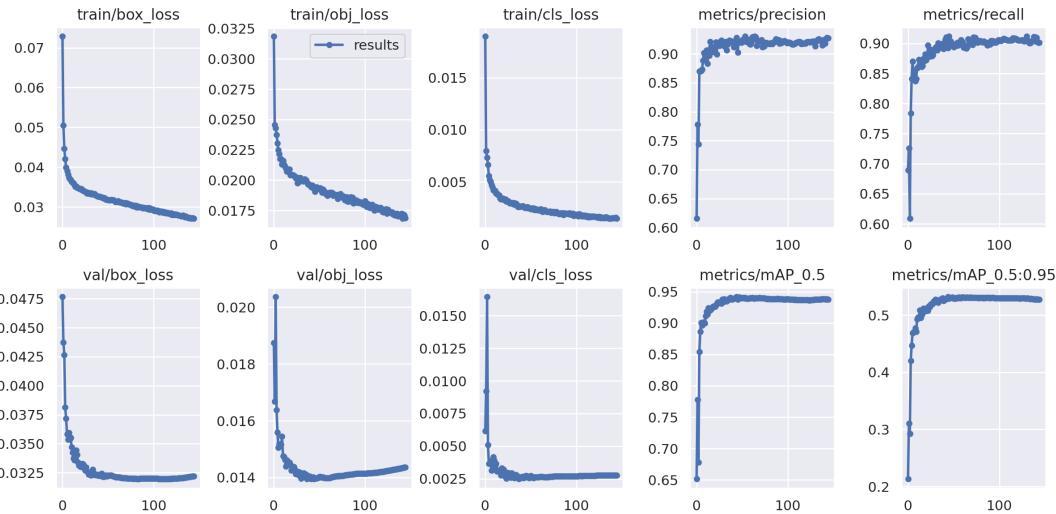
Clear

Output Image



Submit

How do you assess performance?



Truth



Predictions

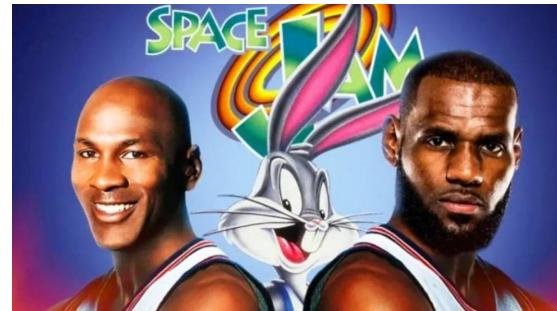


Delicate balance of model training

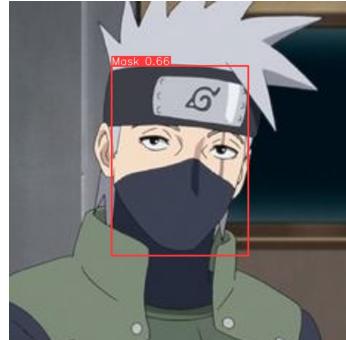
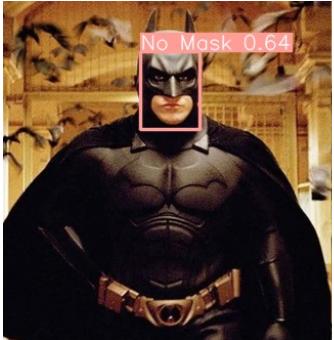
Images like what the model
was trained on



First attempt



Current best version

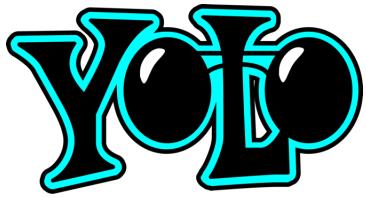


Course Materials

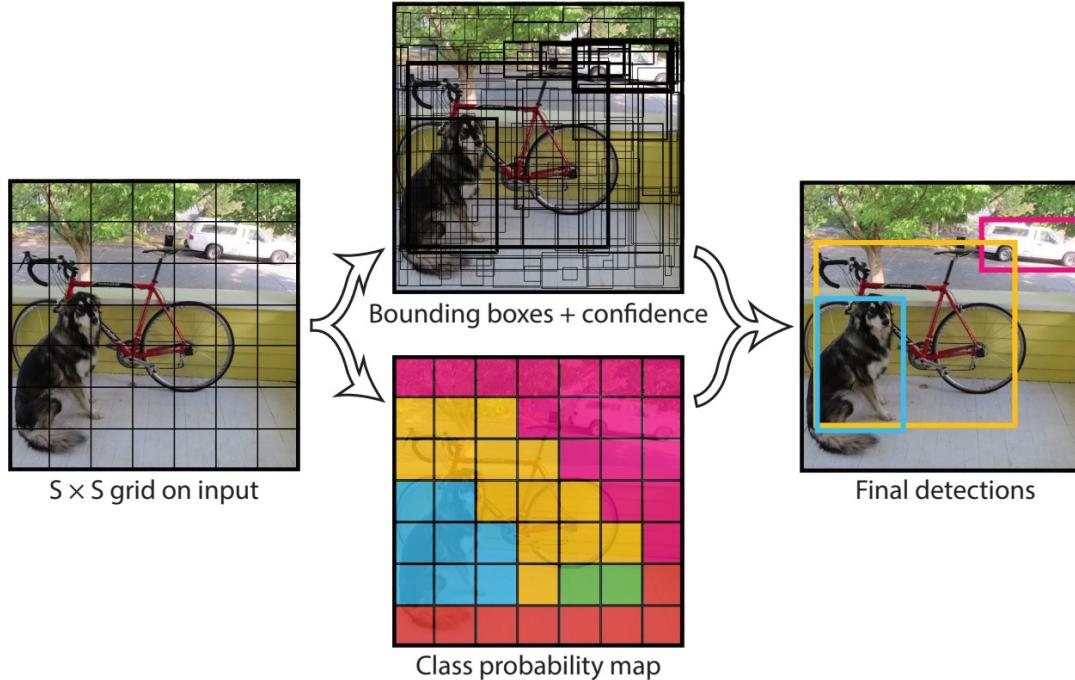
- <https://github.com/Sydney-Informatics-Hub/cv-demo>
- GitHub Repository: <https://github.com/hlydecker/are-you-wearing-a-mask>
- Face Masks dataset on Kaggle:
<https://www.kaggle.com/datasets/henrylydecker/face-masks>
- Live Web App: <https://huggingface.co/spaces/hlydecker/are-you-wearing-a-mask>
- Original YOLO: <https://pjreddie.com/darknet/yolo/>
- YOLOv5: <https://github.com/ultralytics/yolov5>

Out of Domain Prediction – Animals and Baby Yoda!





: You Only Look Once



J Redmon et al 2016