



USCoders

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Team





The problem

- Want to filter for:
- Two or fewer person case
 - One or two people in the image
- One person case
 - Only one person in the image

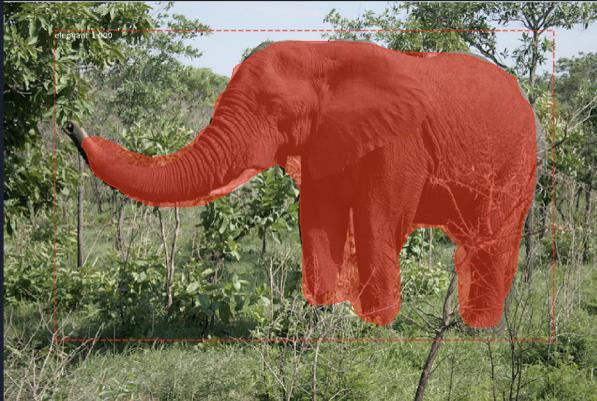


Our Objectives

1. We are looking at cropping the pictures instead of simply resizing to increase accuracy of our model.
2. We will implement keras and mobilenet on the case of pictures with one person for now. Our group hopes to expand the model to cases of two or fewer eventually.
3. At the end of the project, we hope to have a model constructed with 80% or greater accuracy.

Object Detection x Image Segmentation

- The task of **image segmentation** is to train a neural network to output a pixel-wise mask of the image.
- **Object detection** is a computer vision technique that allows us to identify and locate objects in an image or video.

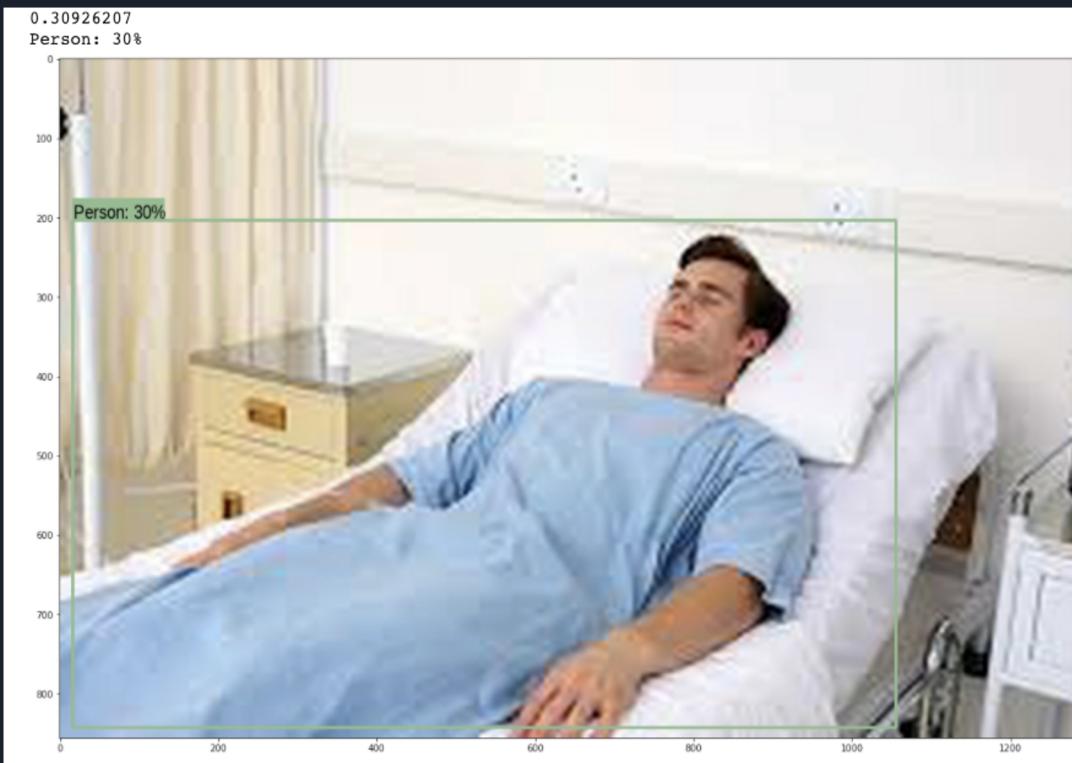




Mobilenet V2

- MobileNet-v2 is a convolutional neural network that is 53 layers deep.
- You can load a pre-trained version of the network trained on more than a million images from a ImageNet database
- The pretrained network can classify images into 1000 object categories, such as keyboard, mouse, pencil, and many animals

COCO Object Detection

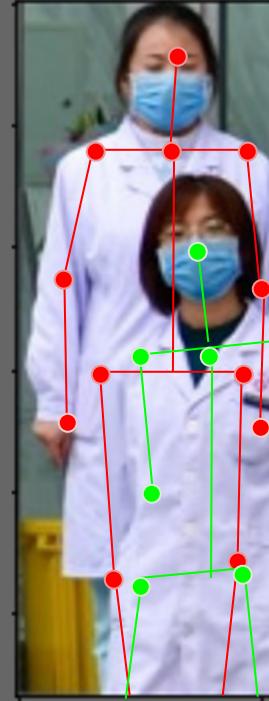




Next Steps

- Create a pipeline for our own data sets and analyze performance
- Test other available detection classes (90 available)
- Crop images using bounding boxes and train classification model to see if accuracy improves
- May need to optimize speed

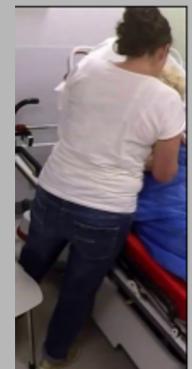
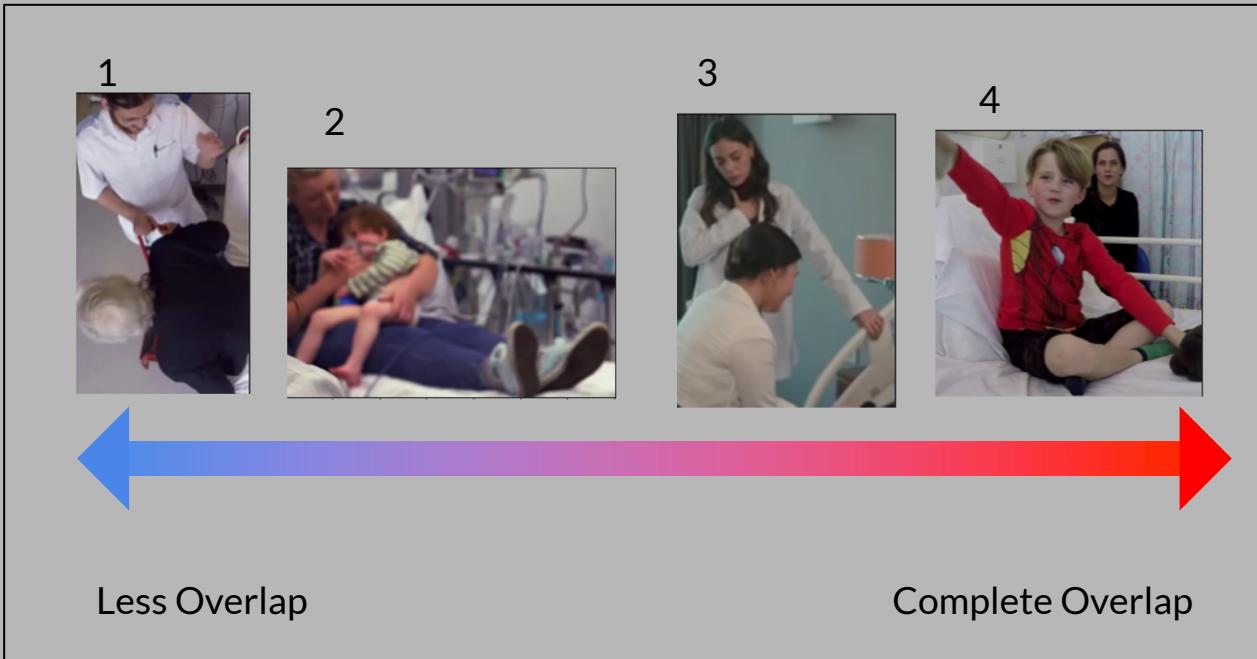
Two(+) People: Human Pose Skeleton Approach?



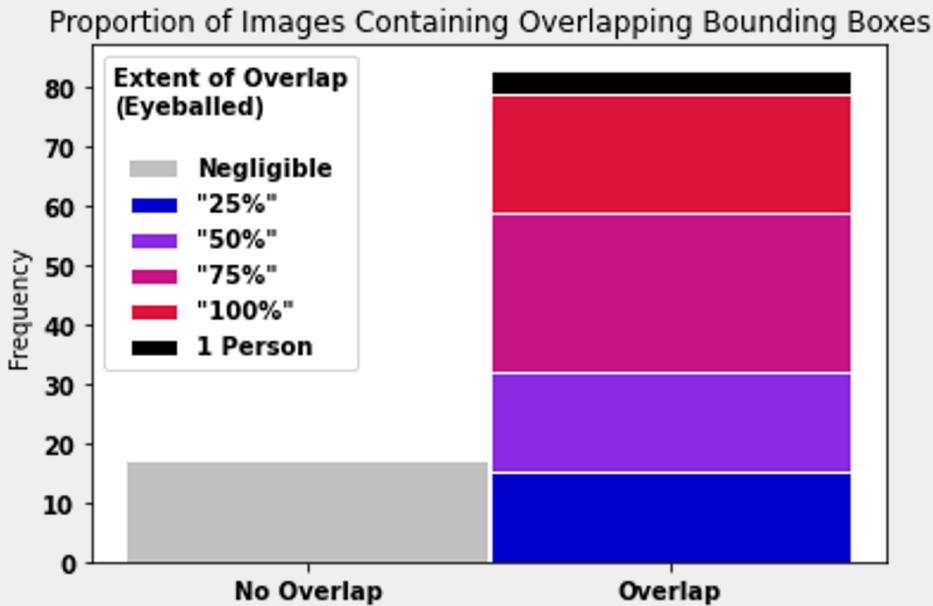
“Two People” + “Not Occluded”



(Negligible / No
Overlap)



(1 Person?)





Questions ?



Object Detection with Mask R-CNN

What is Mask R-CNN?

- a deep neural network aimed at object detection and instance segmentation used on top of Keras and Tensorflow
- creates a bounding box for where the object is within the image

Why is this important?

- Use bounding box to crop image instead of simply resizing
- Hope to create better accuracy this way so that images don't get stretched or distorted in the resizing process