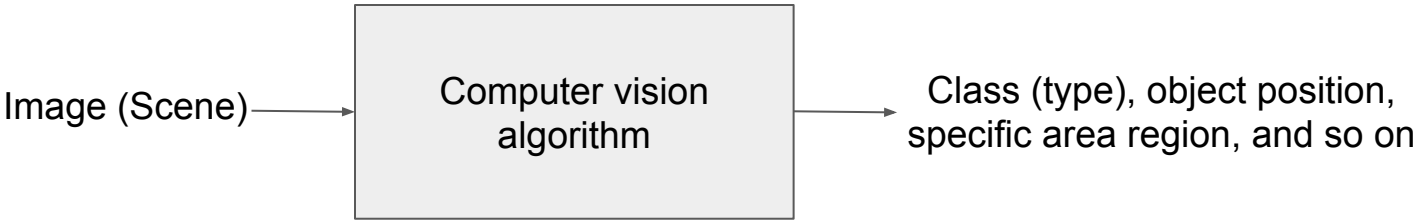
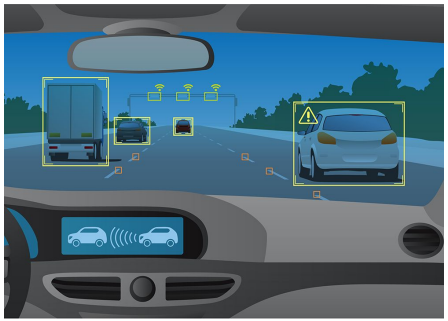
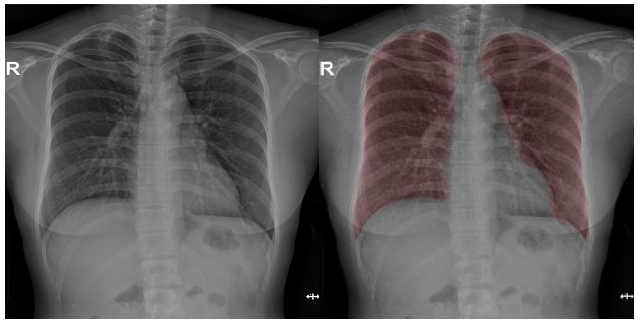
Introduce computer vision using deep neural network

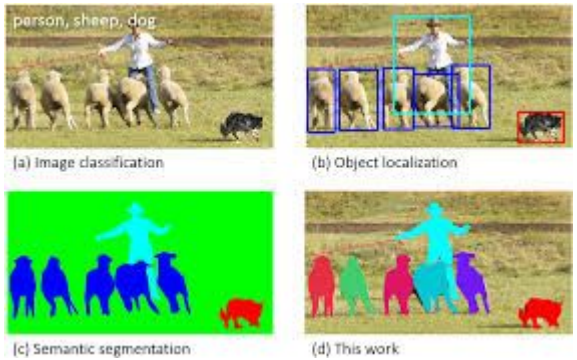
What is the computer vision?

- image or a video is taken as input, and the goal is to understand (including being able to infer something about it) the image and its contents.









Computer vision task

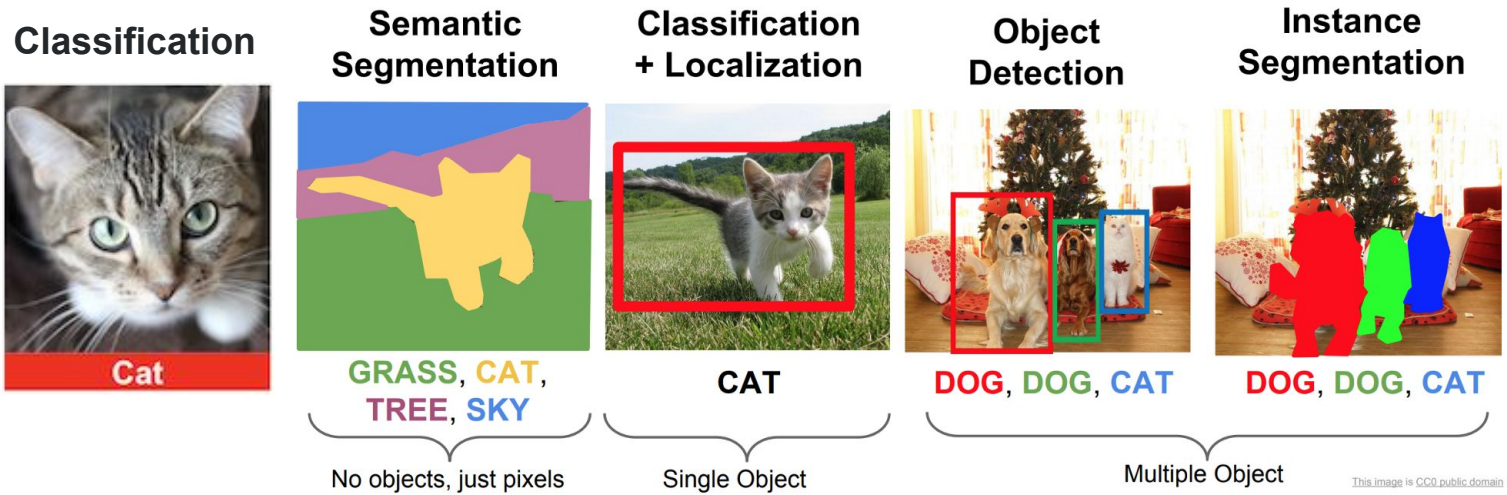
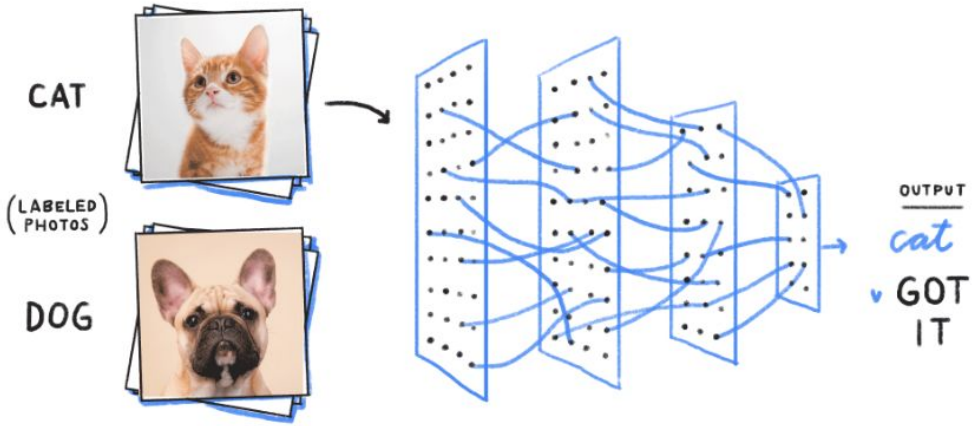
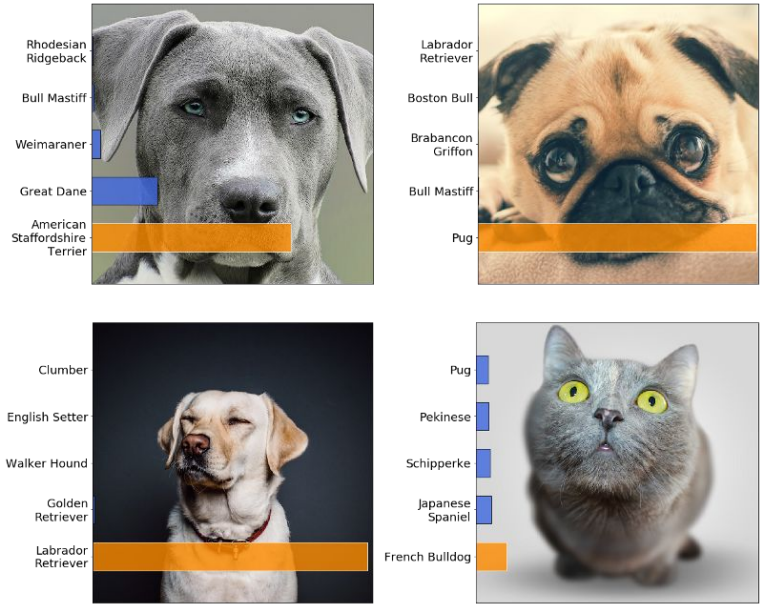


Image classification





Object detection (object localization + classification)

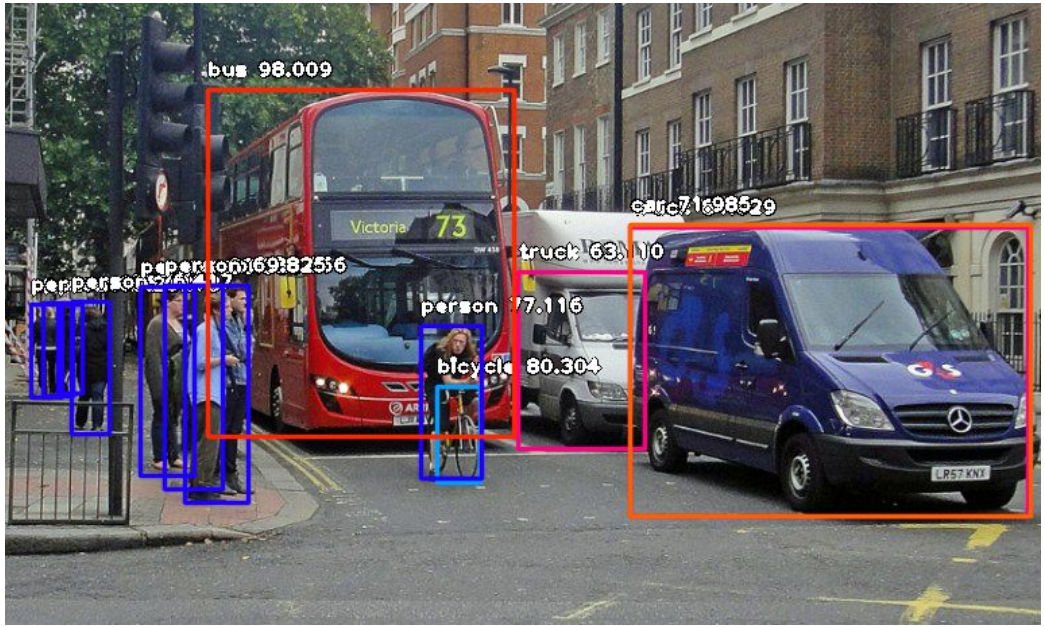
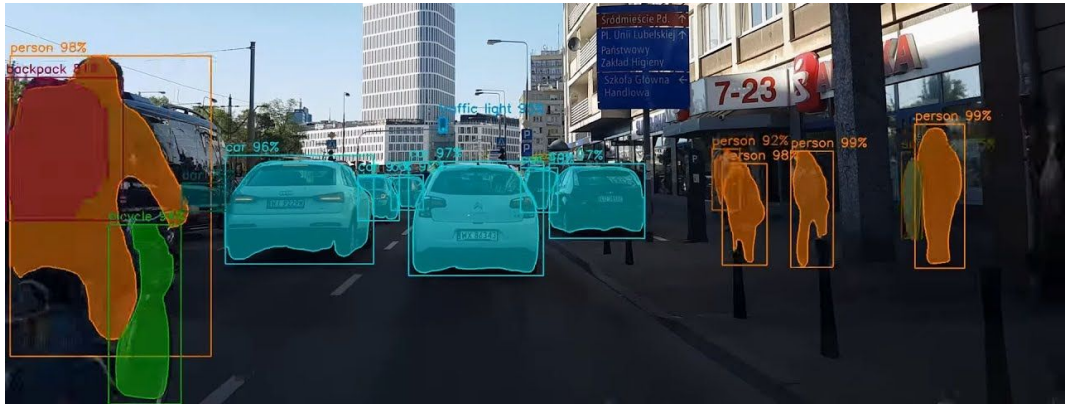


Image segmentation

Semantic segmentation (pixel-wise classification)

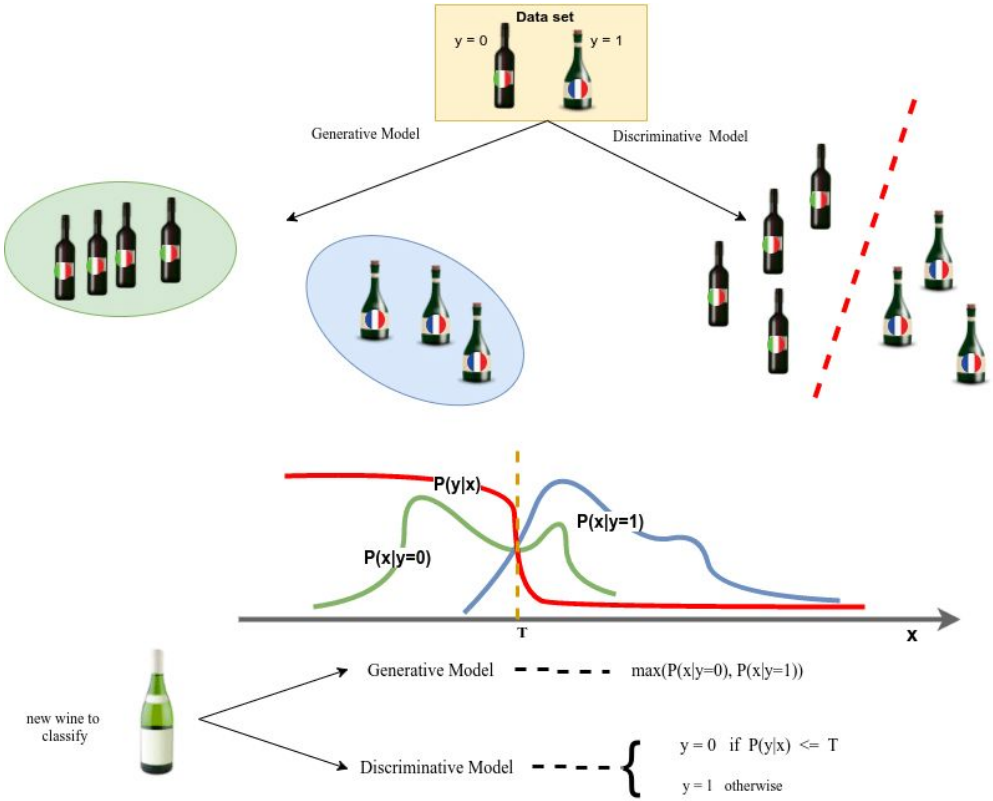


Instance segmentation

Image generation

https://www.youtube.com/watch?v=_xq_wlxeax8

Generative model vs discriminative model



Perception (autonomous driving car field)

https://www.youtube.com/watch?v=O8kdeaZoMbM (Perception)

https://www.youtube.com/watch?v=gfWjsKsEry0 (autonomous driving text using perception)