Image segmentation

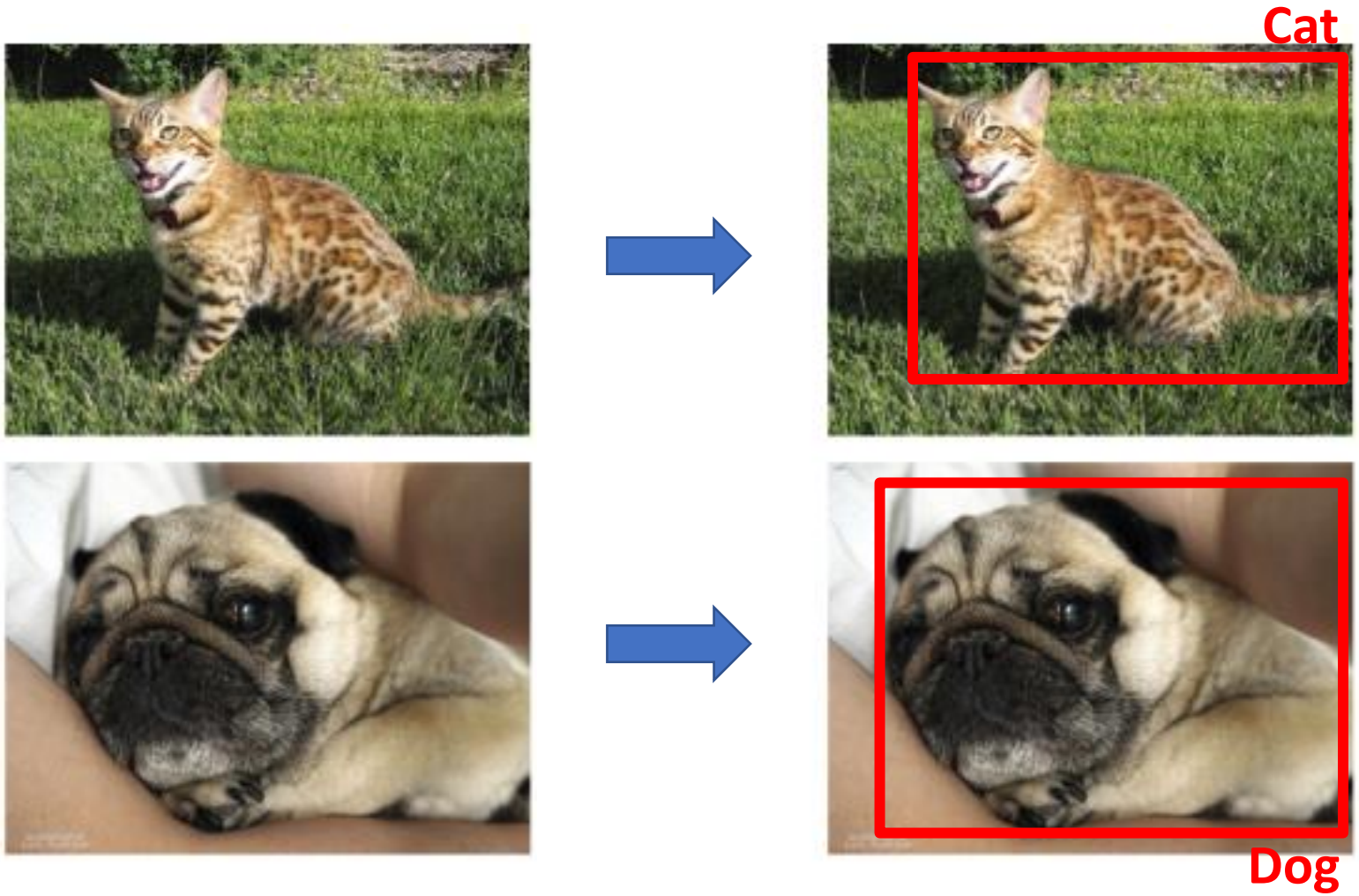
Image classification

Discrete labels:
[cat, dog, …]

Cat

Dog

Image classification w/t localization



Object detection

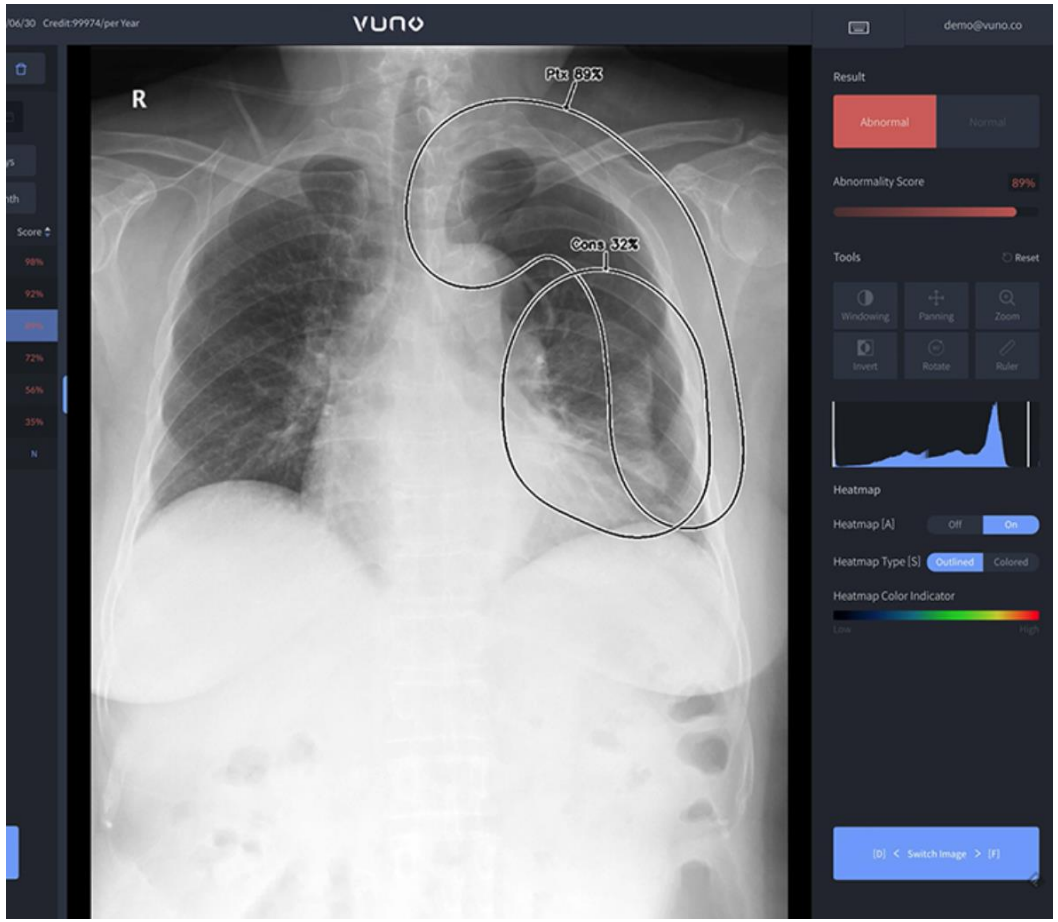
Image segmentation

Input Image

Semantic Segmentation

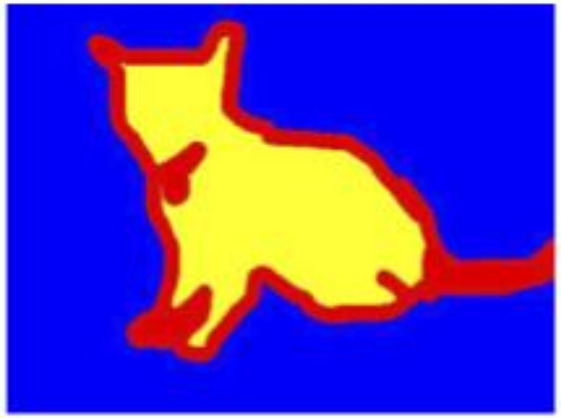
Instance Segmentation

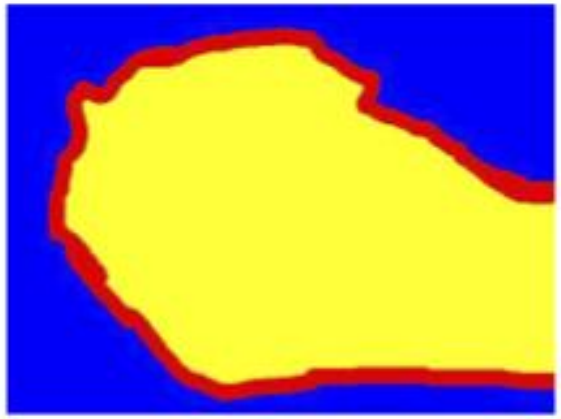
Real world application



Understanding data

Image

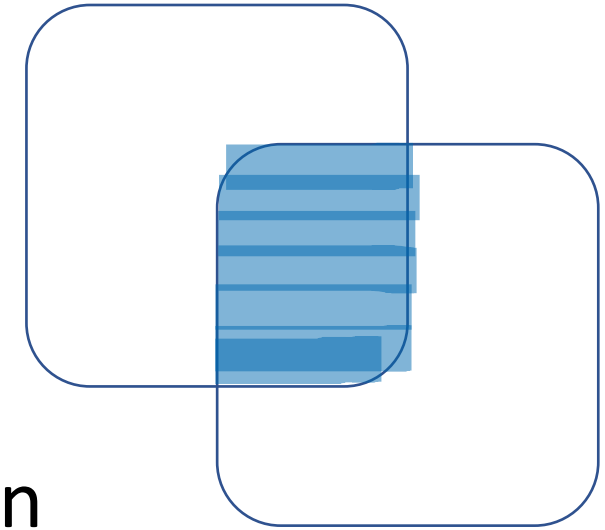




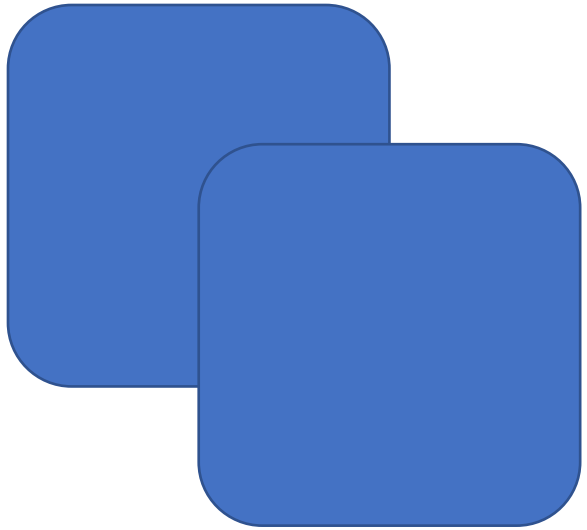
Mask

Intersection over Union

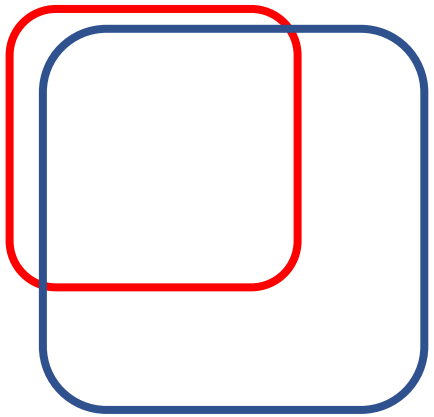
$$\frac{TP}{TP + FP + FN}$$



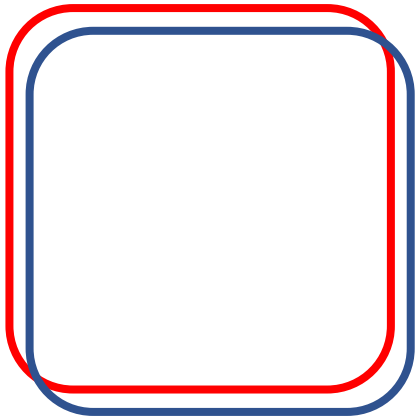
$$\text{IoU} = \frac{\text{Intersection}}{\text{Union}}$$



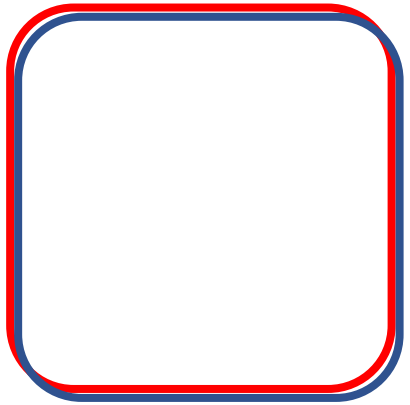
Intersection over Union



IoU : 0.4



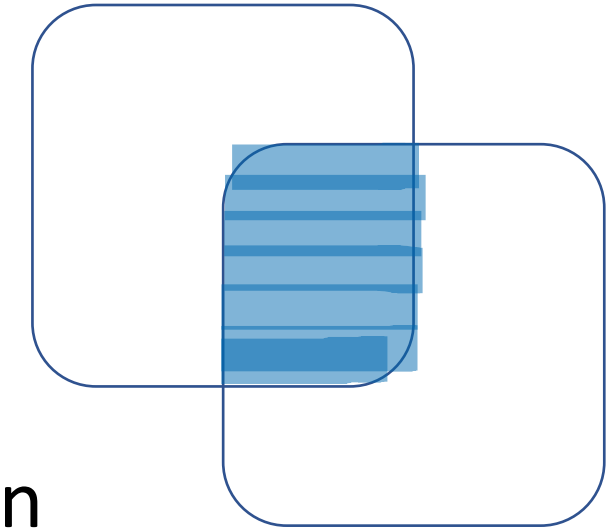
IoU : 0.7



IoU : 0.9

Dice coefficient

$$\frac{2TP}{2TP + FP + FN}$$



$$\text{Dice} = \frac{2 * \text{Intersection}}{\text{Prediction} + \text{Ground truth}}$$