

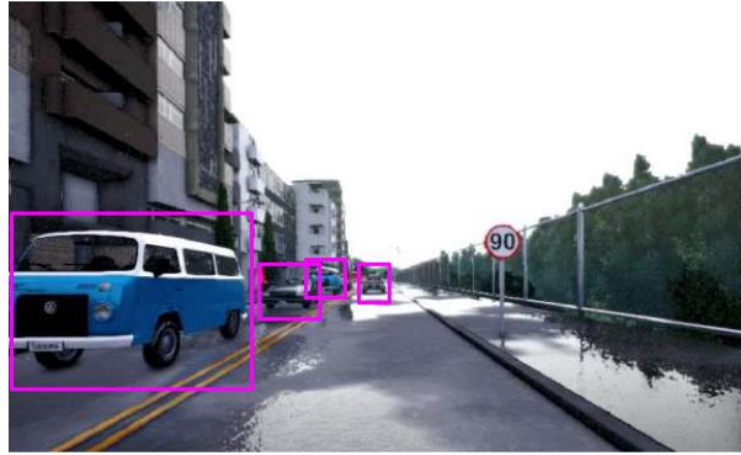
# Lecture12

## UNet

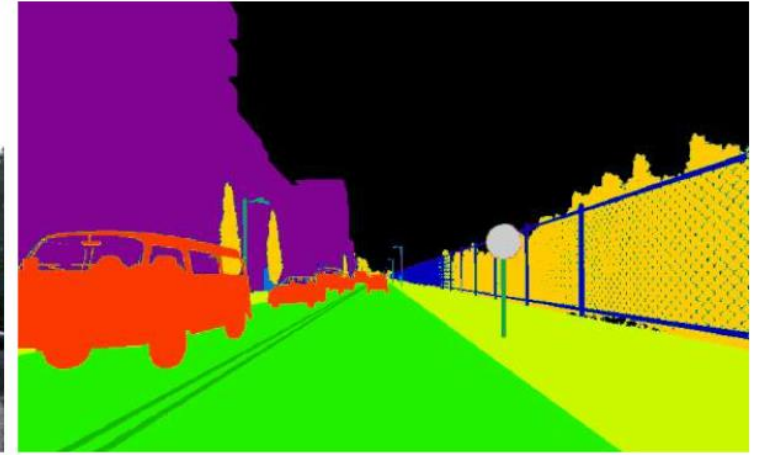
# Object detection vs Semantic Segmentation



Input image

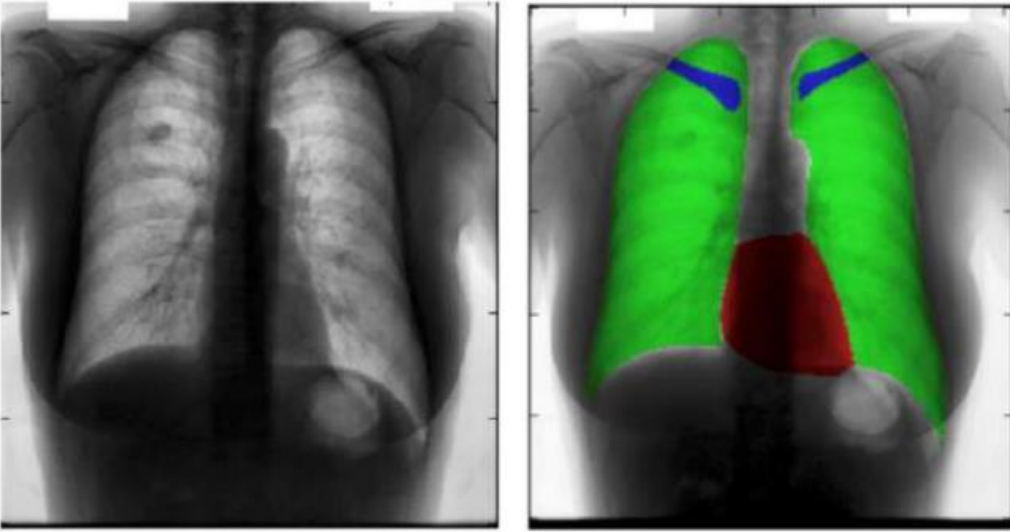


Object Detection

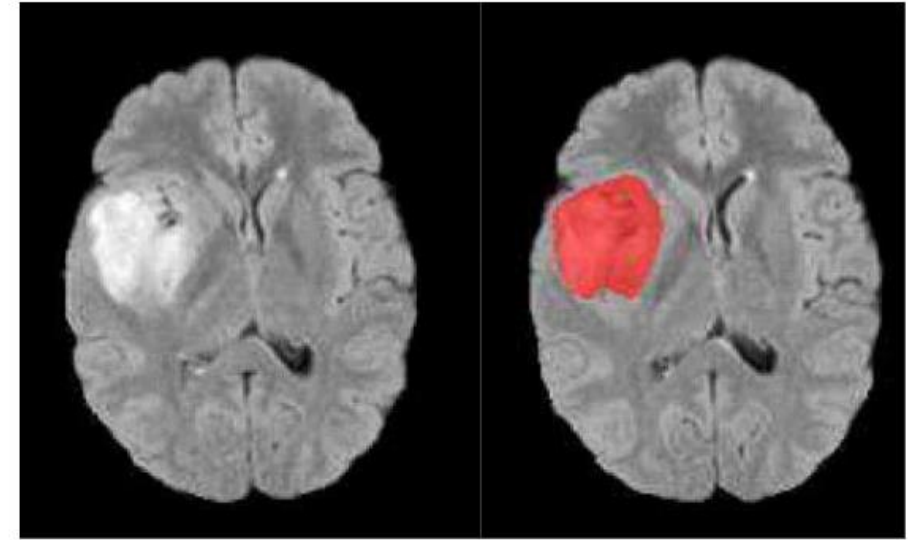


Semantic Segmentation

# UNet



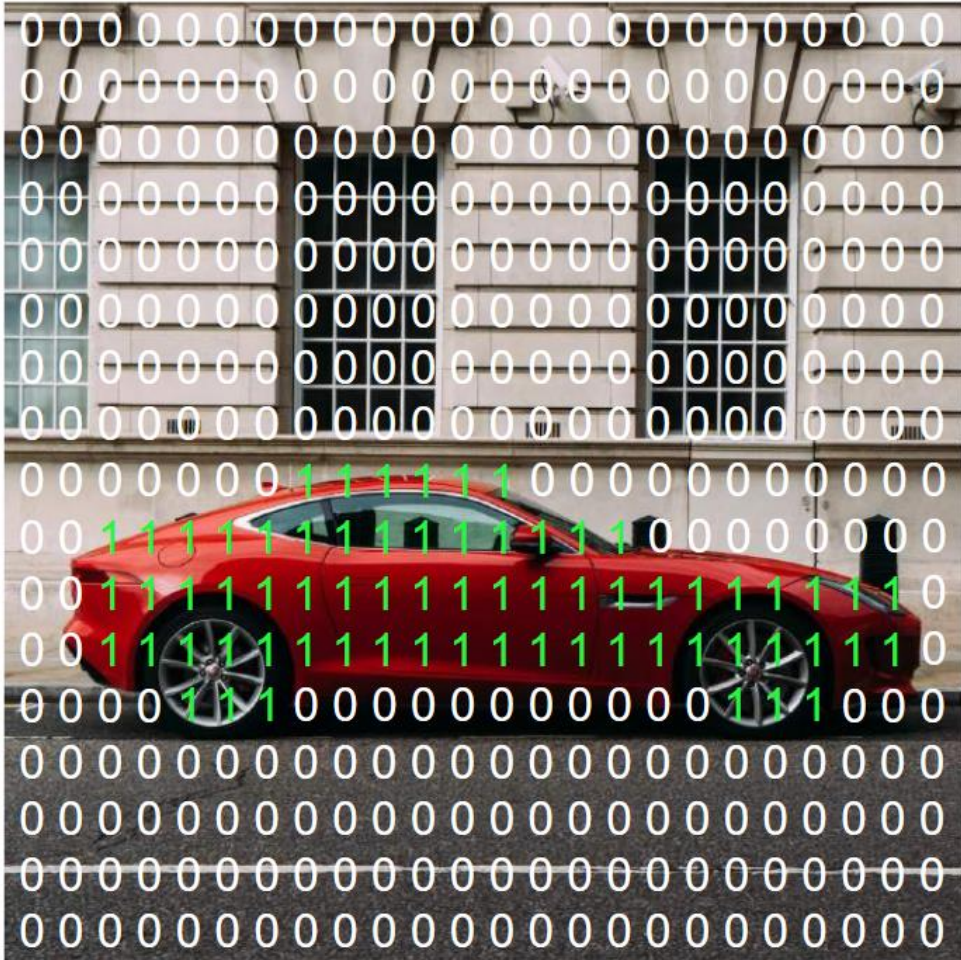
Chest X-Ray



Brain MRI

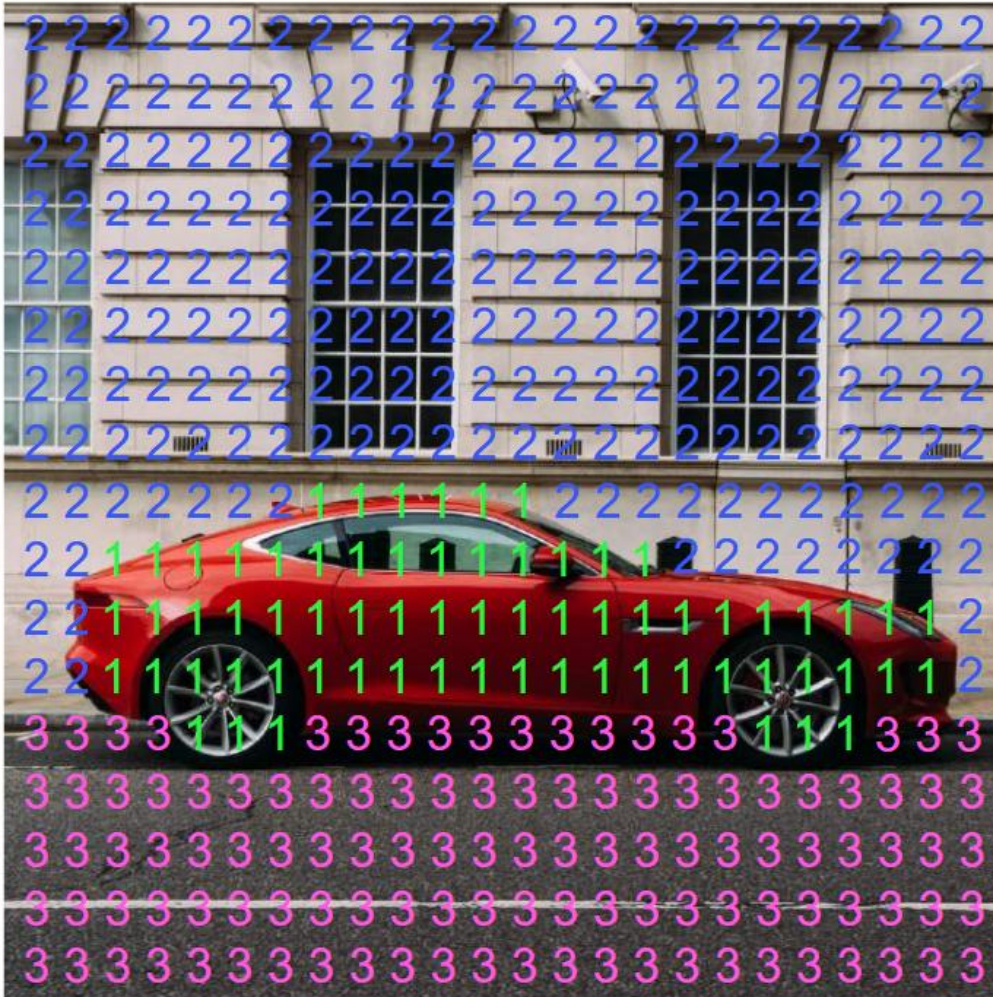
[Novikov et al., 2017, Fully Convolutional Architectures for Multi-Class Segmentation in Chest Radiographs]  
[Dong et al., 2017, Automatic Brain Tumor Detection and Segmentation Using U-Net Based Fully Convolutional Networks ]

## Per-Pixel class labels

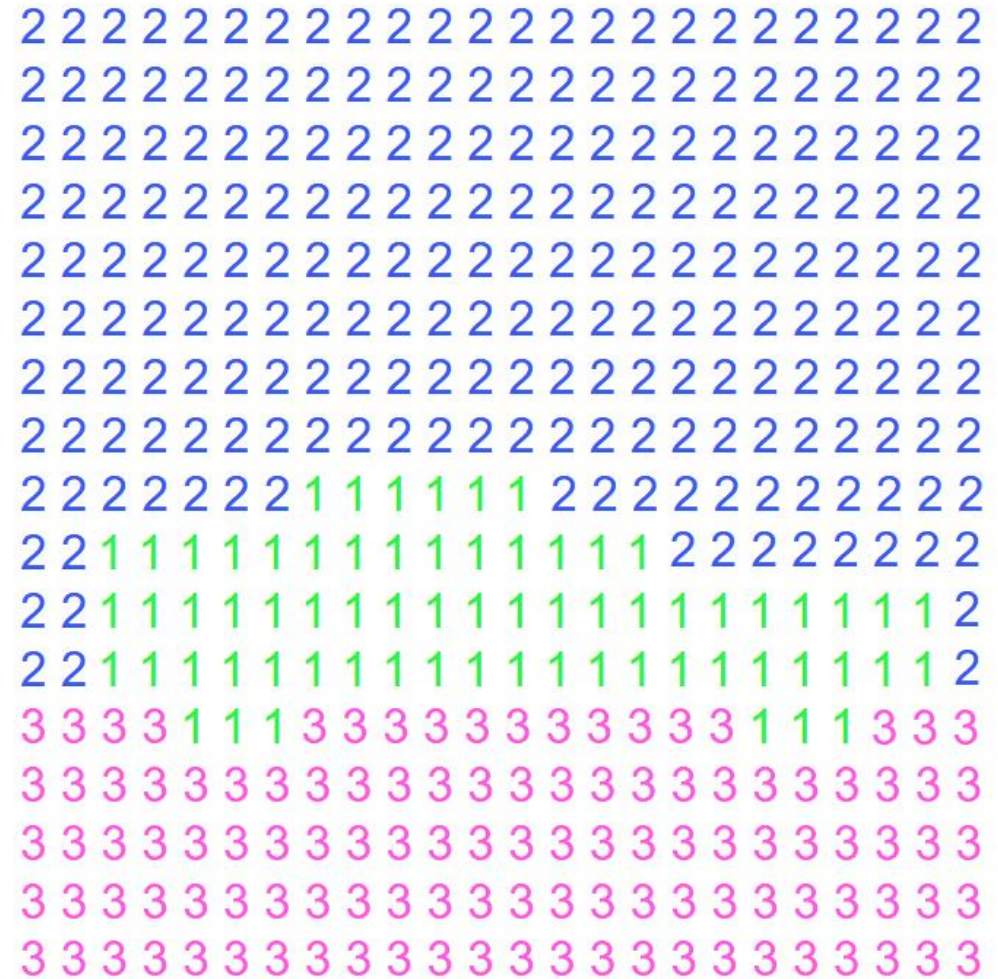




# Per-Pixel class labels

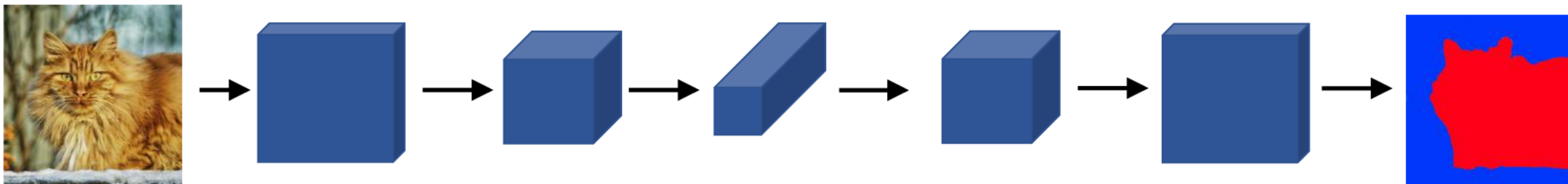


1. Car
2. Building
3. Road



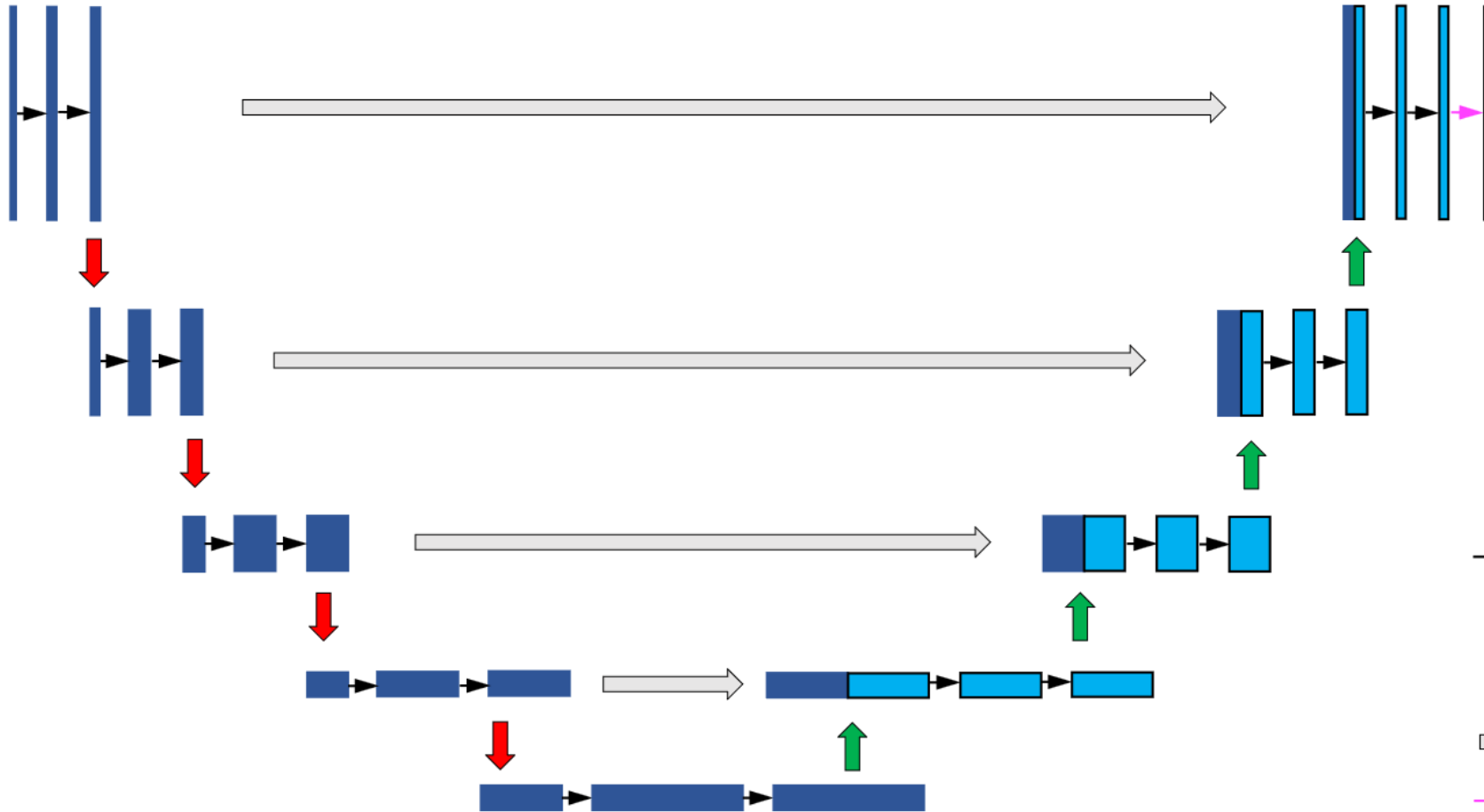
Segmentation Map

# DL for semantic segmentation



# UNet

## U-Net



- Conv, RELU
- ↓ Max Pool
- ↑ Trans Conv
- Skip Connection
- Conv (1x1)