

edureka!



What is Object Detection?



AGENDA

- Intro to Machine Learning (ML)
- Classification AND Regression
- Common Terms
- Demo1
- R-CNN, Fast R-CNN AND Faster R-CNN
- You Only Look Once (YOLO)
- Demo2



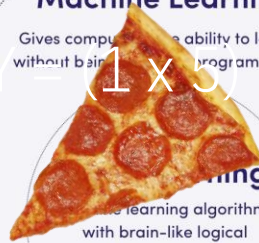
WHAT IS MACHINE LEARNING ?

| Time | Healthy | Save Money |
|-------|---------|------------|
| 1 | 0 | 1 |
| W = 3 | | W = 2 |

Do you love Pizza ?

Machine Learning

Gives computer the ability to learn without being explicitly programmed"



Machine learning algorithms with brain-like logical structure of algorithms called artificial neural networks

LEVITY

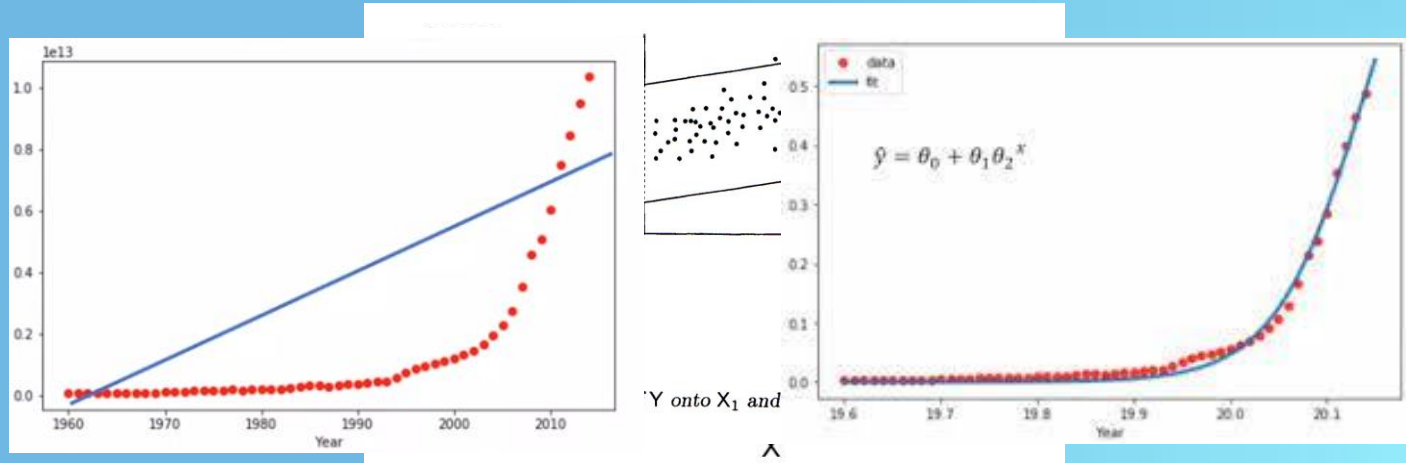
$$Y = (1 \times 3) + (0 \times 3) + (1 \times 2) - 5 = \underline{+2}$$

We Will Order !



REGRESSION VS. CLASSIFICATION

3. Multiple Regression



CLASSIFICATION

Binary Classification using
Logistic Regression

Multi-Class Classification using
SVM
“Support vector machine”



CLASSIFICATION

What about a small challenge ...



C1

C2



Cat



Fish



Dog



Shark

Classification VS. Clustering



CLASSIFICATION

What about a small challenge ...



Classification VS. Localization



CLASSIFICATION

What about a small challenge ...



Classification VS. Segmentation



COMMON TERMS

1. Weights

2. Loss Function

3. Cost Function

4. Overfitting VS. Underfitting

5. Pre-processing

6. Neuron

7. Data Augmentation

8. NLP

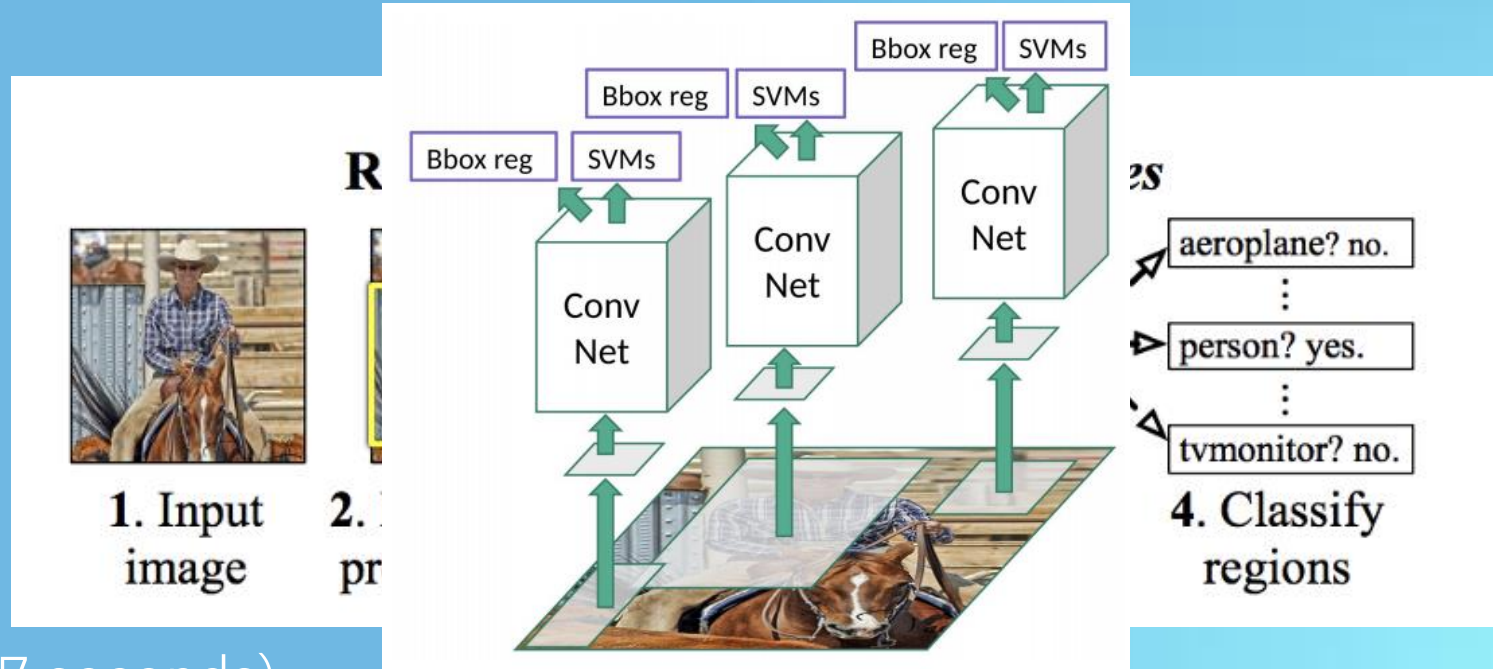


[DEMO] BINARY CLASSIFICATION



OBJECT DETECTION

R-CNN

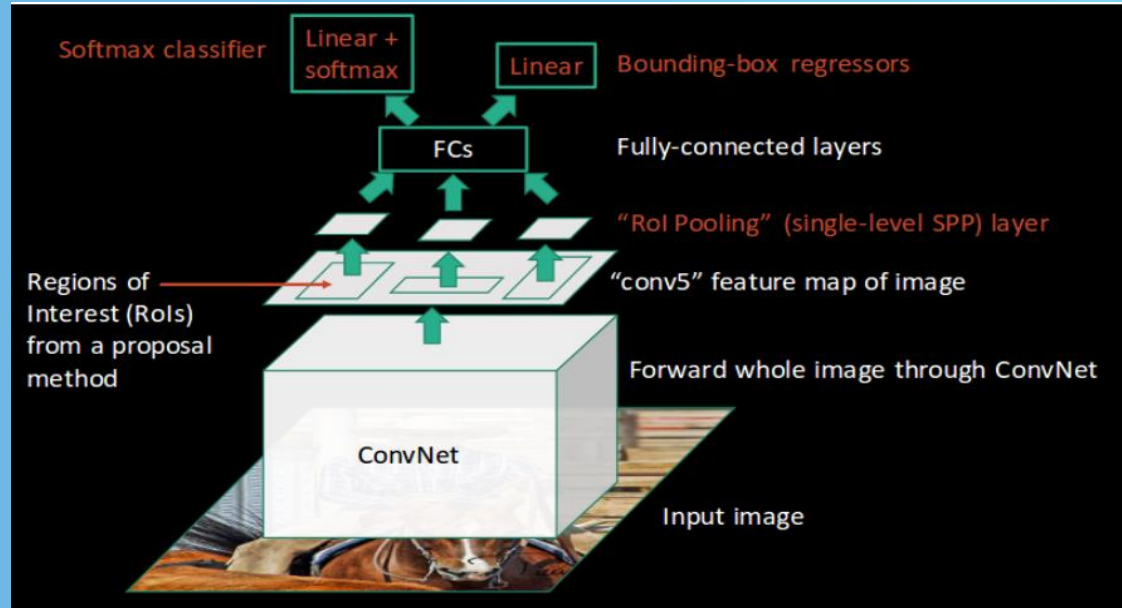


(47 seconds)



OBJECT DETECTION

Fast R-CNN



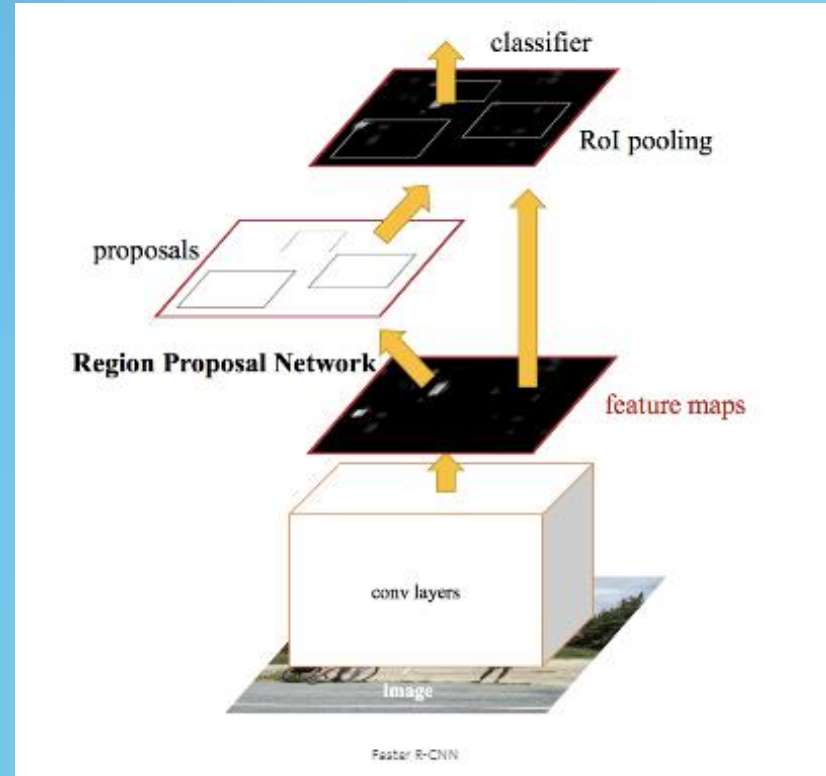
(2.3 seconds)



OBJECT DETECTION

Faster R-CNN

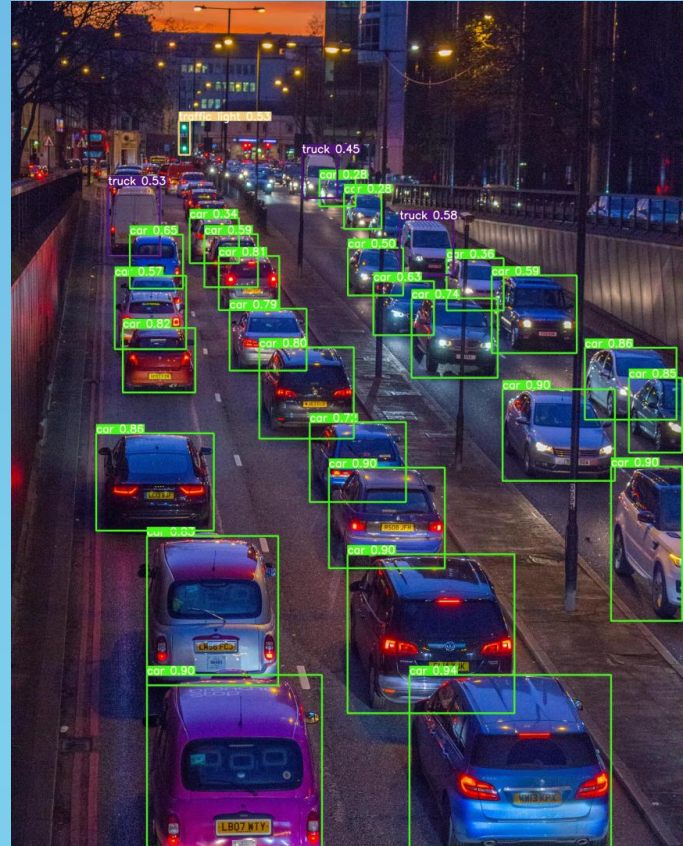
(0.2 seconds)



OBJECT DETECTION

YOLOv7

(155 FPS)



**ANY
QUESTIONS ?**

