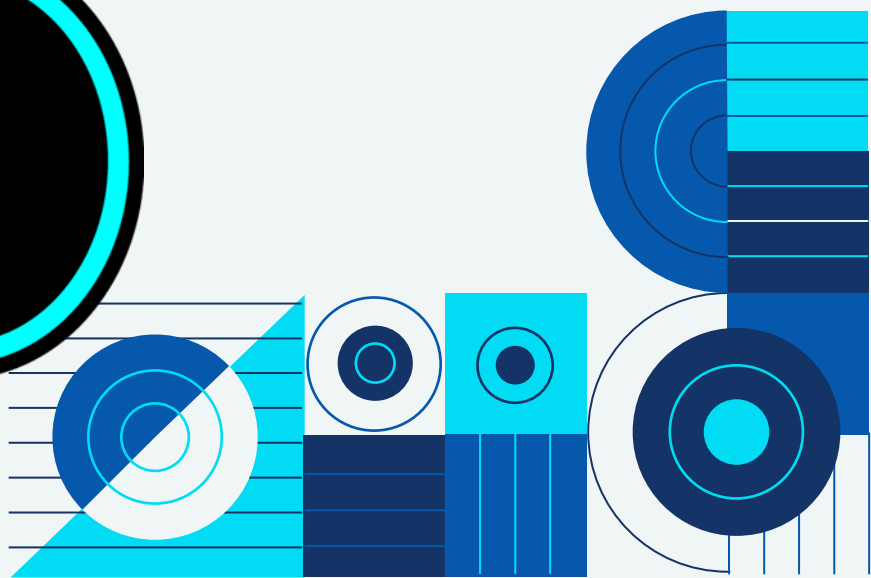
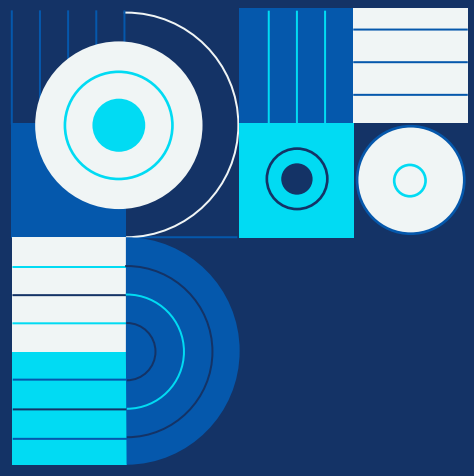




# Gerçek Zamanlı Nesne Takibi :

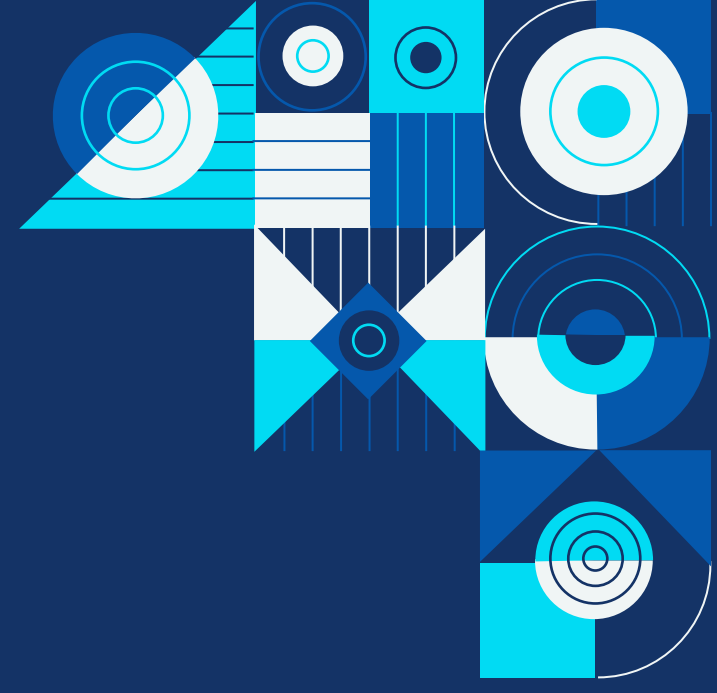
# YOLO





# 01

Nedir Nesne Tespiti?



# Kısaca Nesne Tespiti

2014

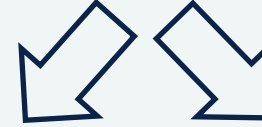
## Traditional Object Detection (Geleneksel Nesne Tespiti)

Genellikle eğitim için geçmiş verilere ihtiyaç duymaz ve denetimsizdir.

- Viola-Jones Detector (2001)
- HOG Detector (2006)
- DPM (2008)

## Deep Learning Detection (Derin Öğrenme ile Tespit)

Genellikle denetimli eğitime dayanır. Performans, yıldan yıla hızla artan GPU'ların hesaplama gücü ile sınırlıdır.

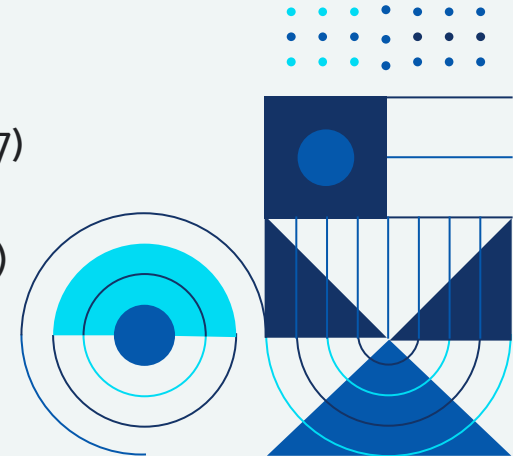
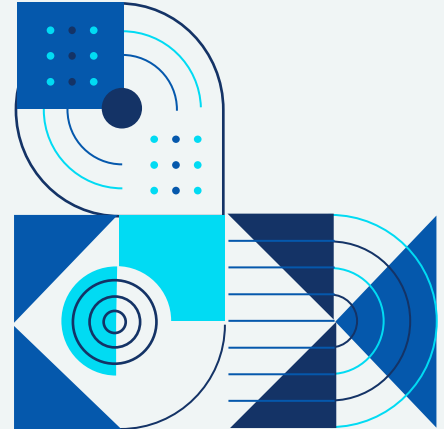


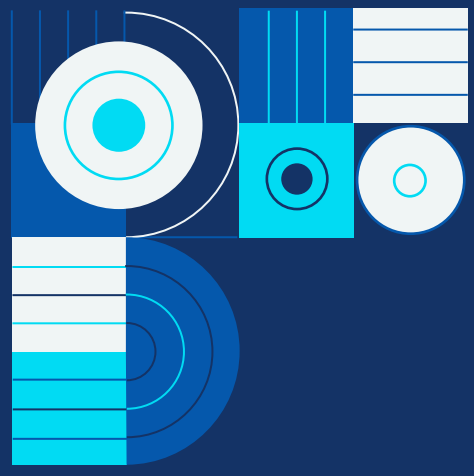
### 2 aşamalı nesne tespit algoritmaları

- RCNN and SPPNet (2014)
- Fast RCNN and Faster RCNN (2015)
- Mask R-CNN (2017)
- Pyramid Networks/FPN (2017)
- G-RCNN (2021)

### Tek aşamalı nesne tespit algoritmaları

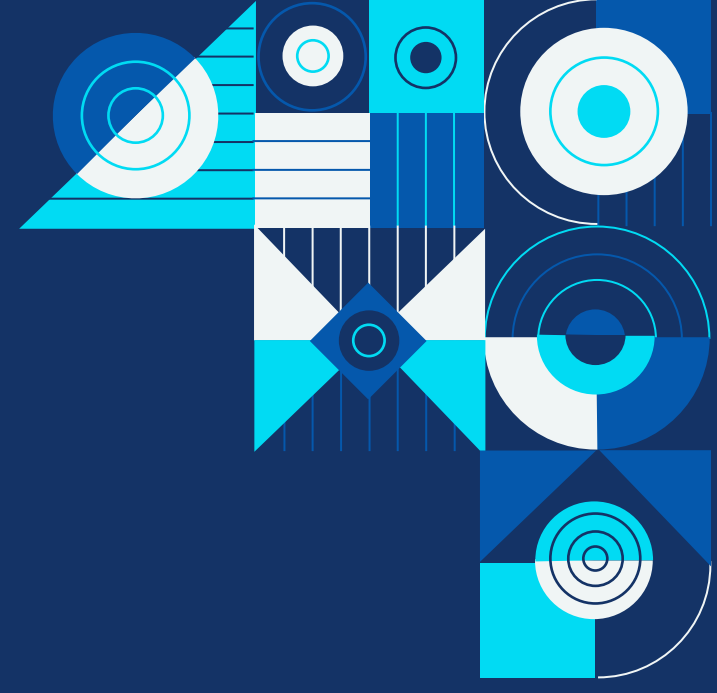
- YOLO (2016)
- SSD (2016)
- RetinaNet (2017)
- YOLOv3 (2018)
- YOLOv4 (2020)
- YOLOR (2021)





# 02

Nedir YOLO?





**Joseph Redmon**

University of Washington



**Ali Farhadi**

Allen Institute for AI



**Santosh Divvala**

University of Washington  
Allen Institute for AI

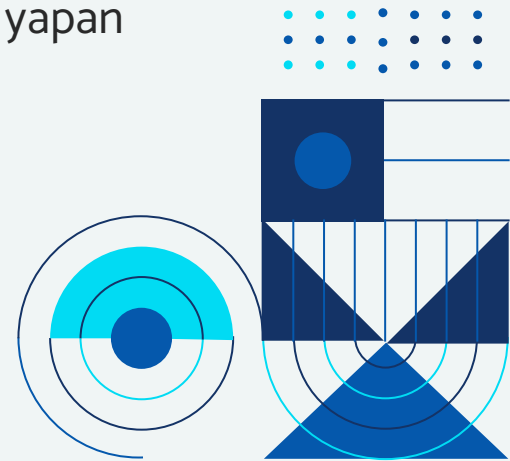
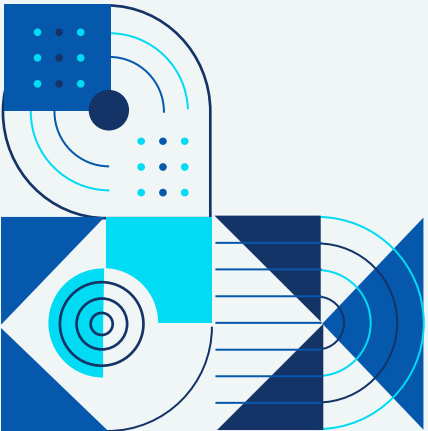


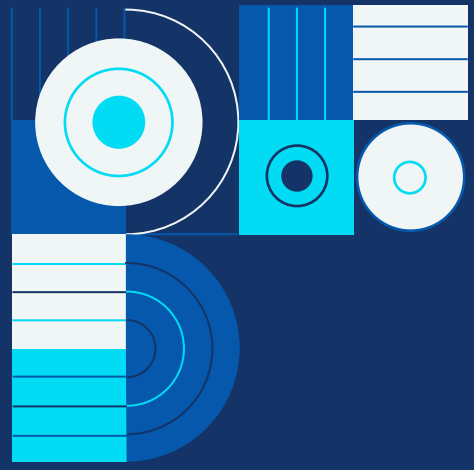
**Ross Girshick**

Facebook AI Research

## ■ “You Look Only Once”

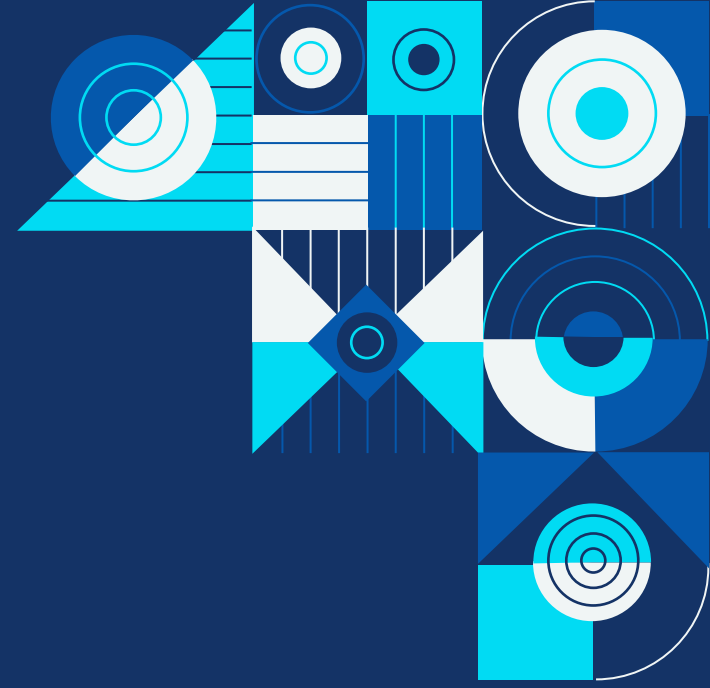
- CNN (Konvolüsyonel Sinir Ağları) kullanarak gerçek zamanlı nesne tespiti yapan bir algoritmadır.
- DarkNet framework’te uygulanmaktadır.



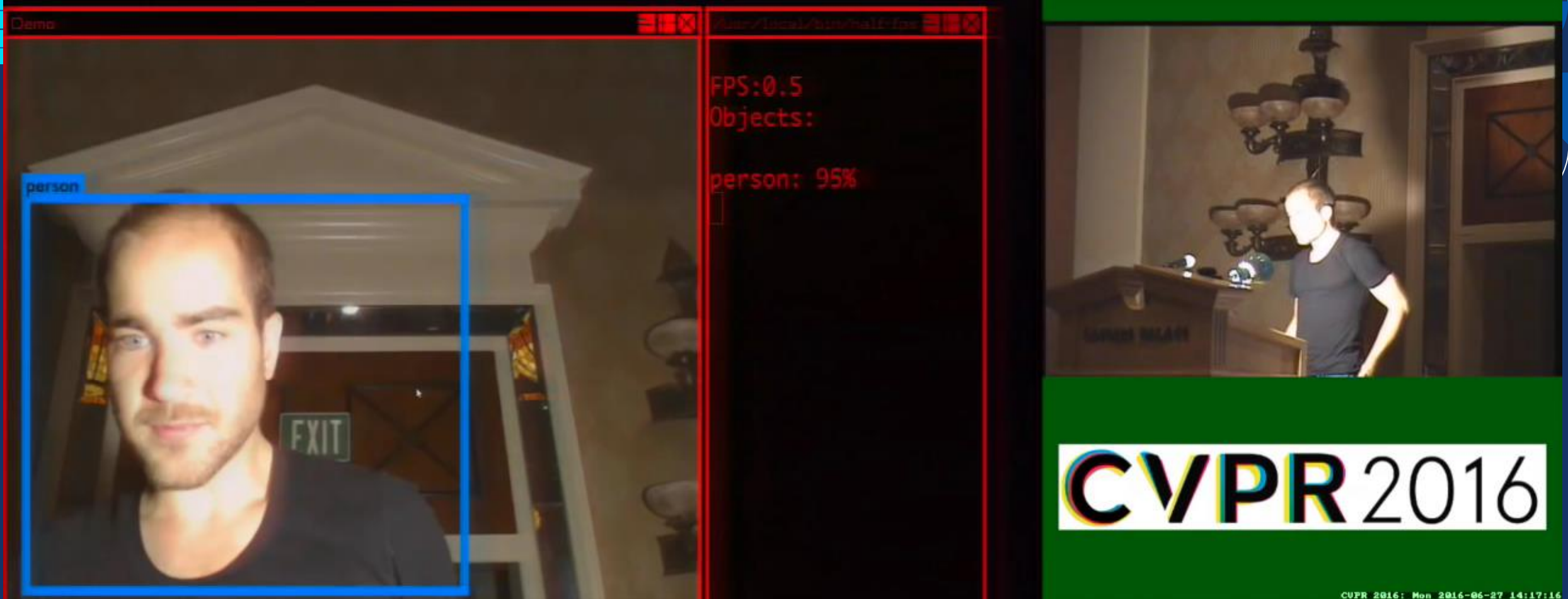


# 03

Neden YOLO?



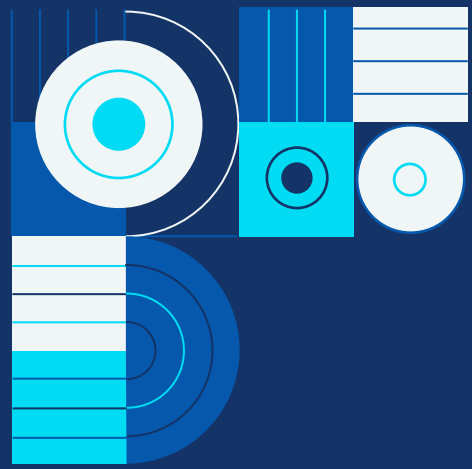
- Gerçek zamanlı nesne tespiti “hızlı” bir şekilde yapabiliyor.





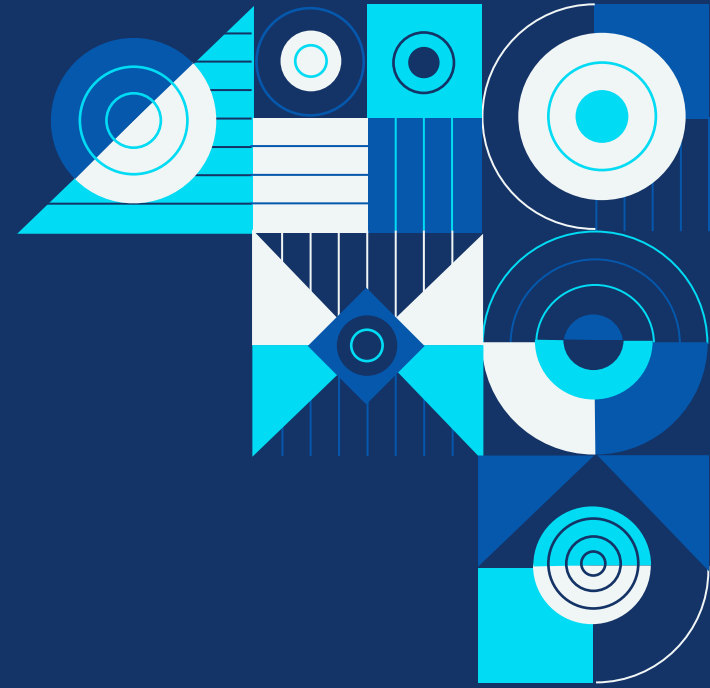


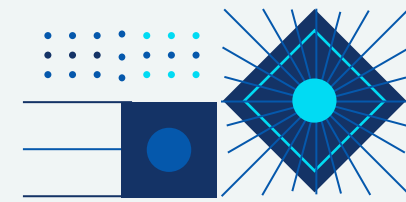




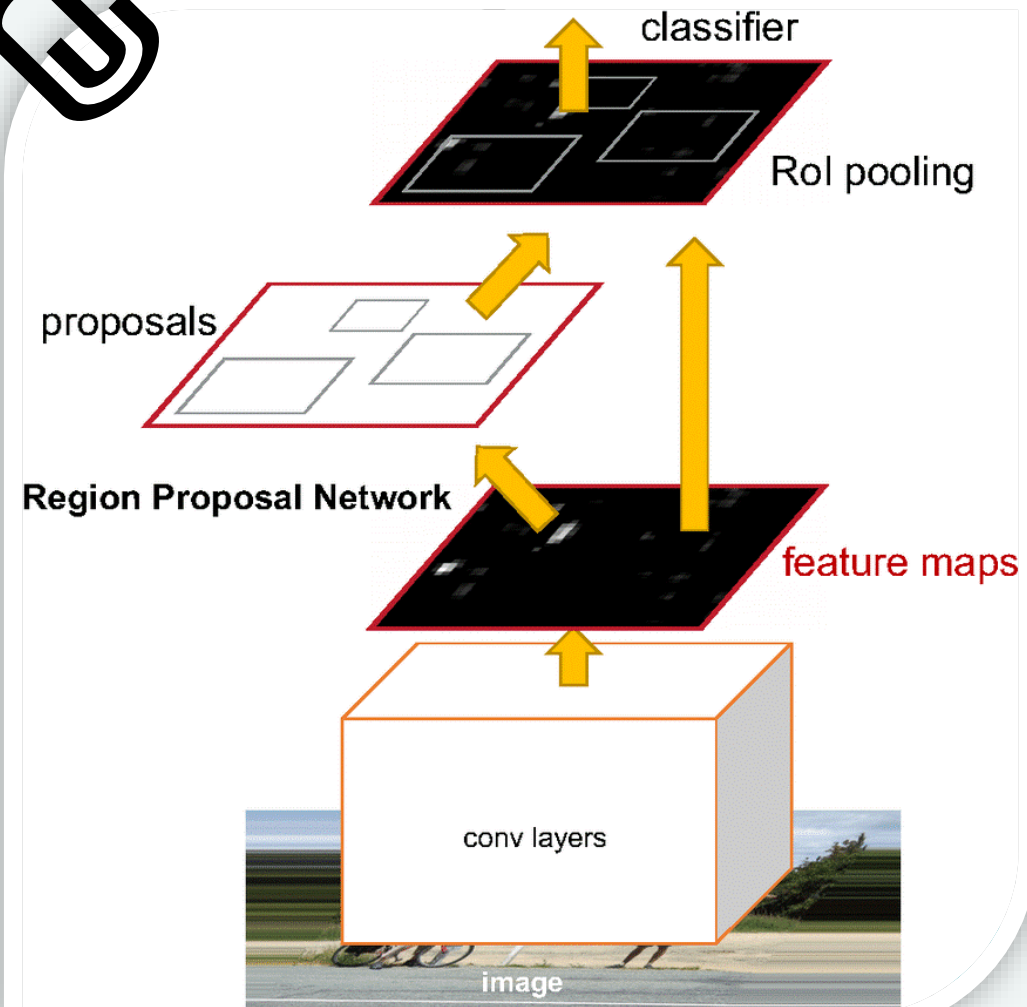
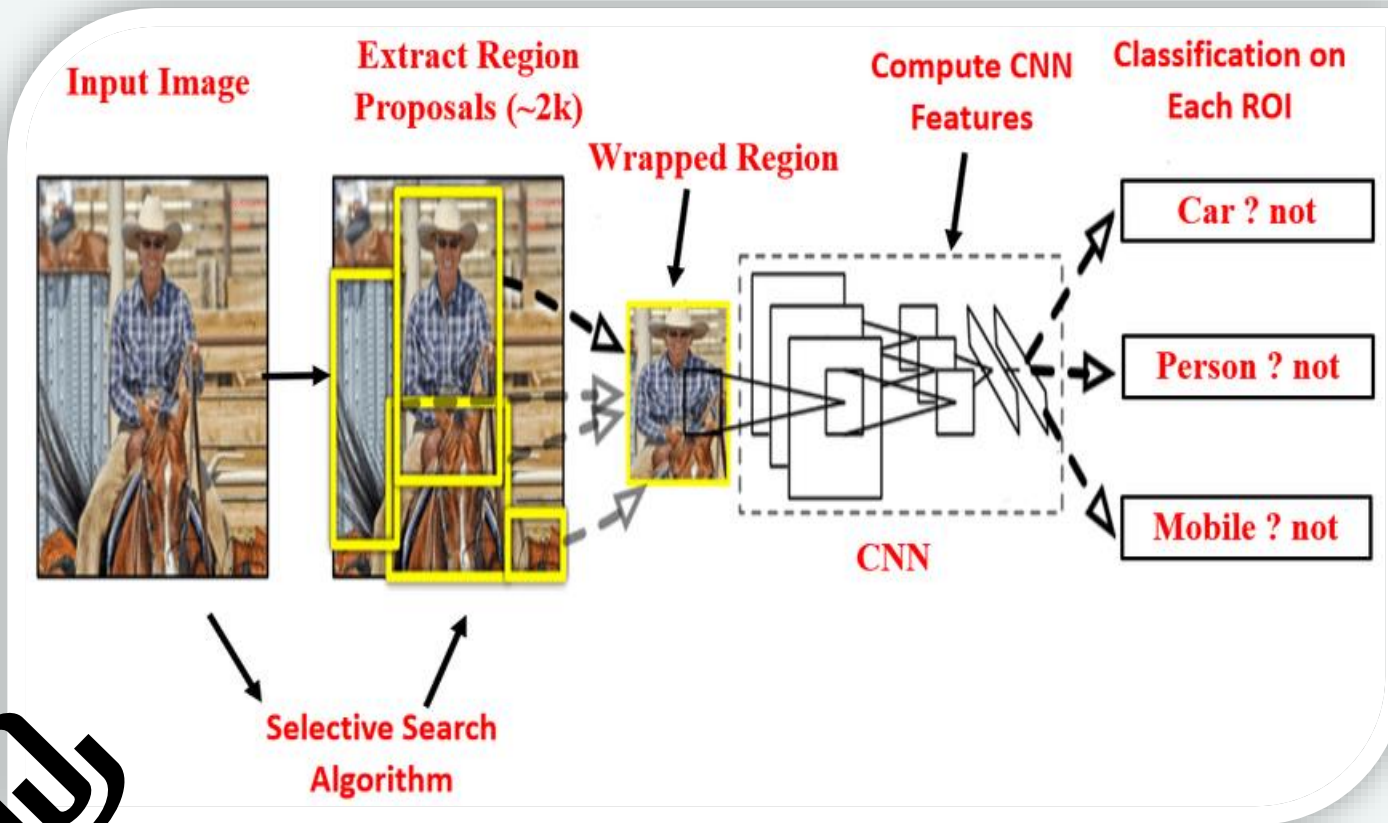
04

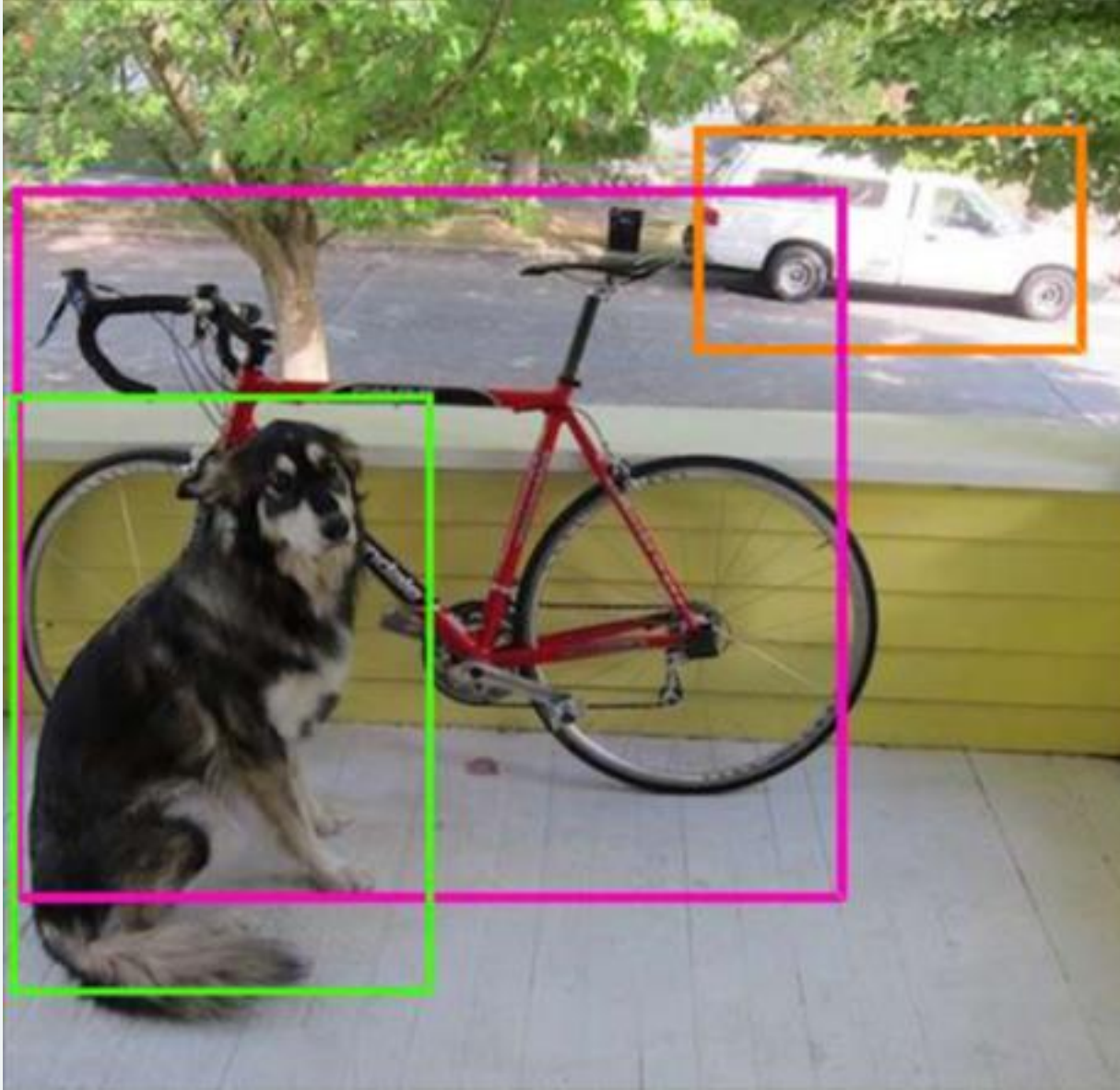
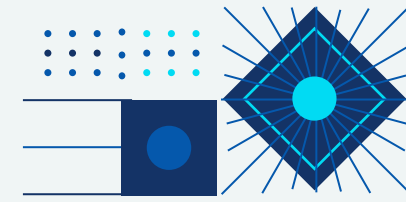
NASIL?



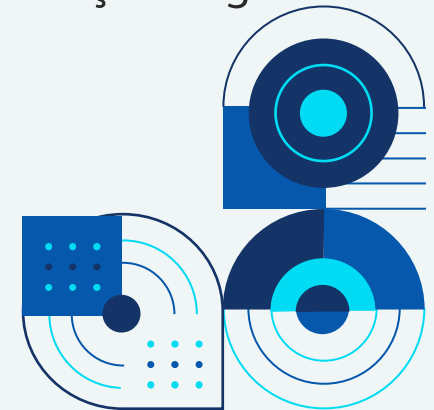


# R-CNN : Regions with CNN Features (Region Based Convolutional Neural Networks)

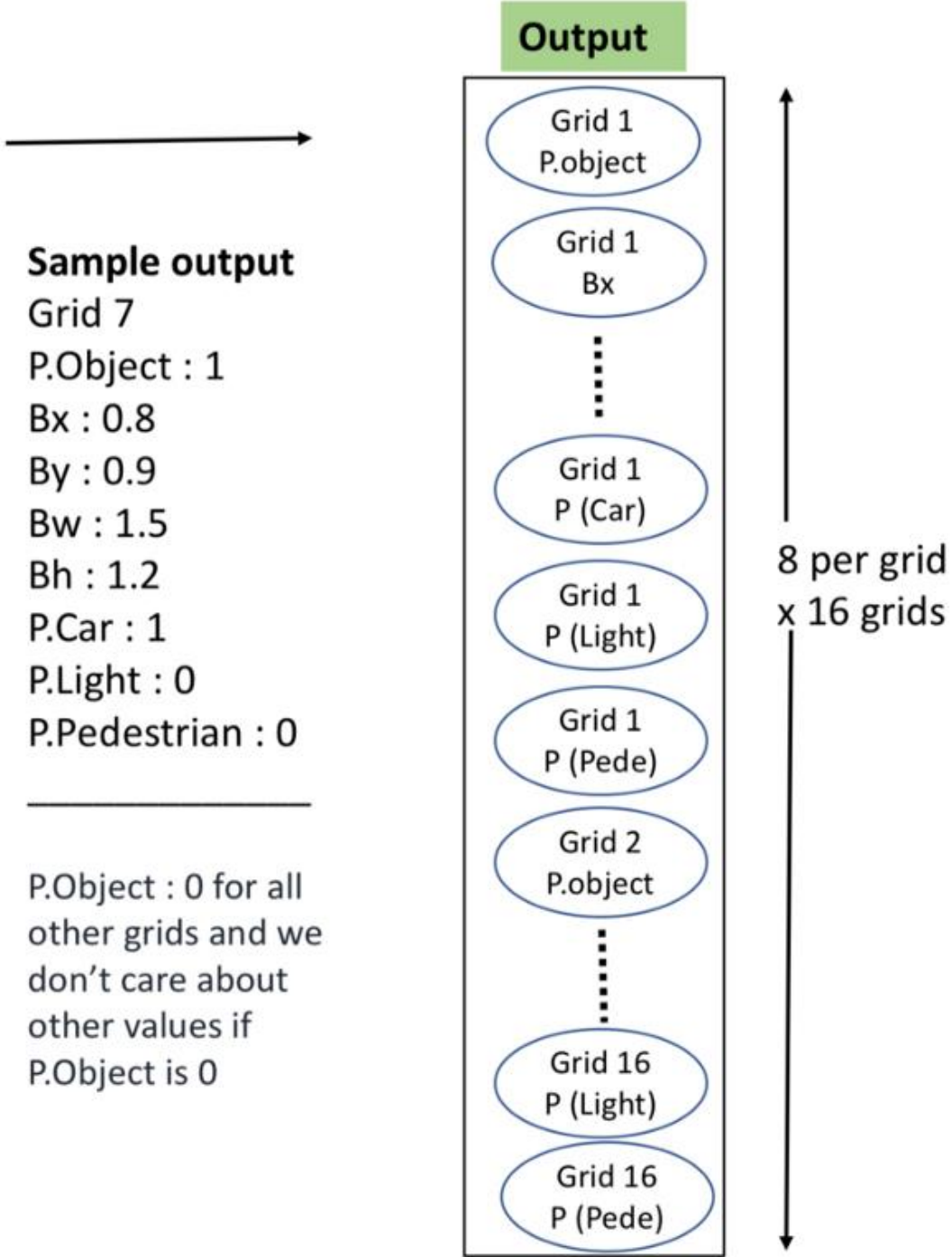
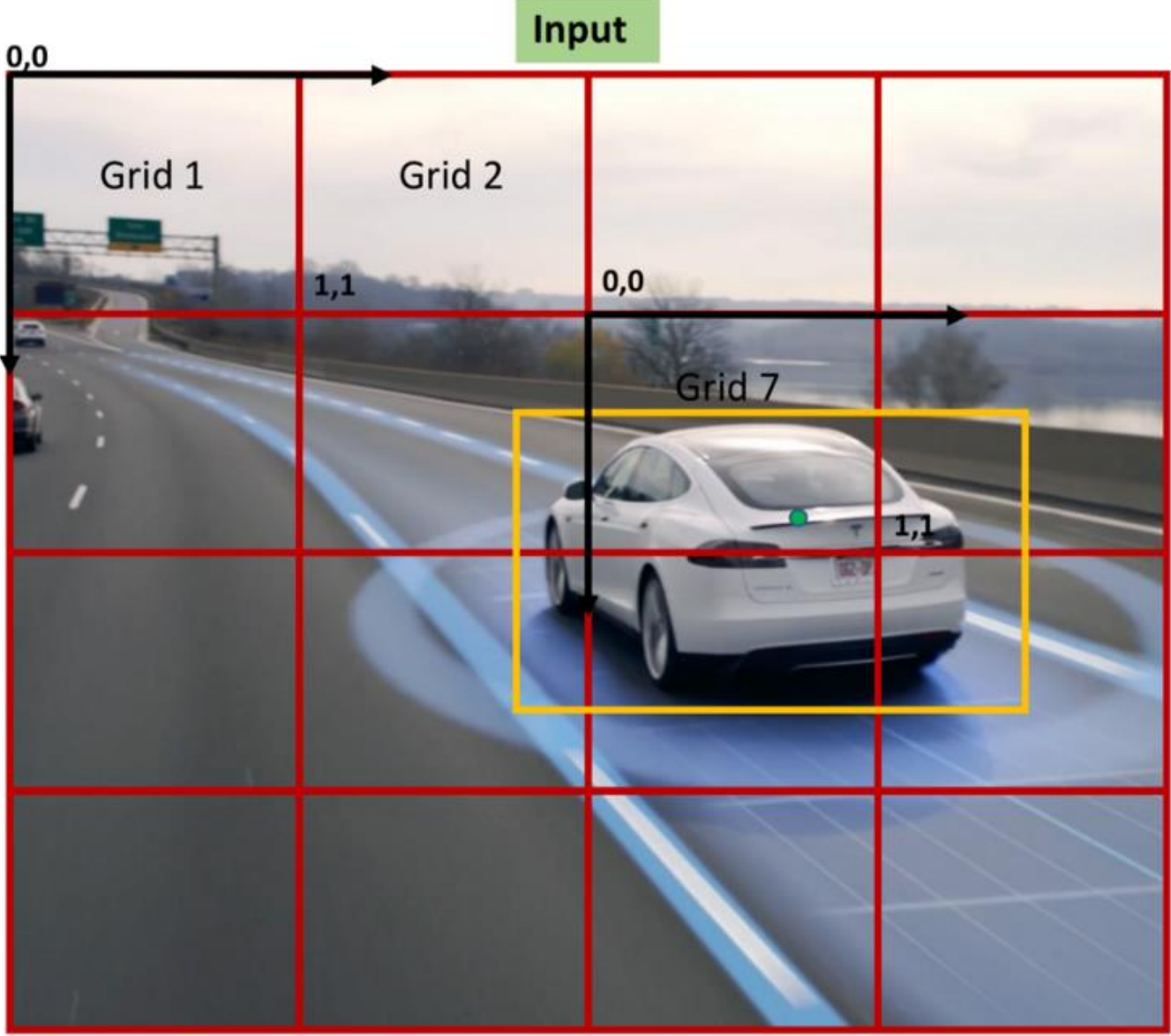




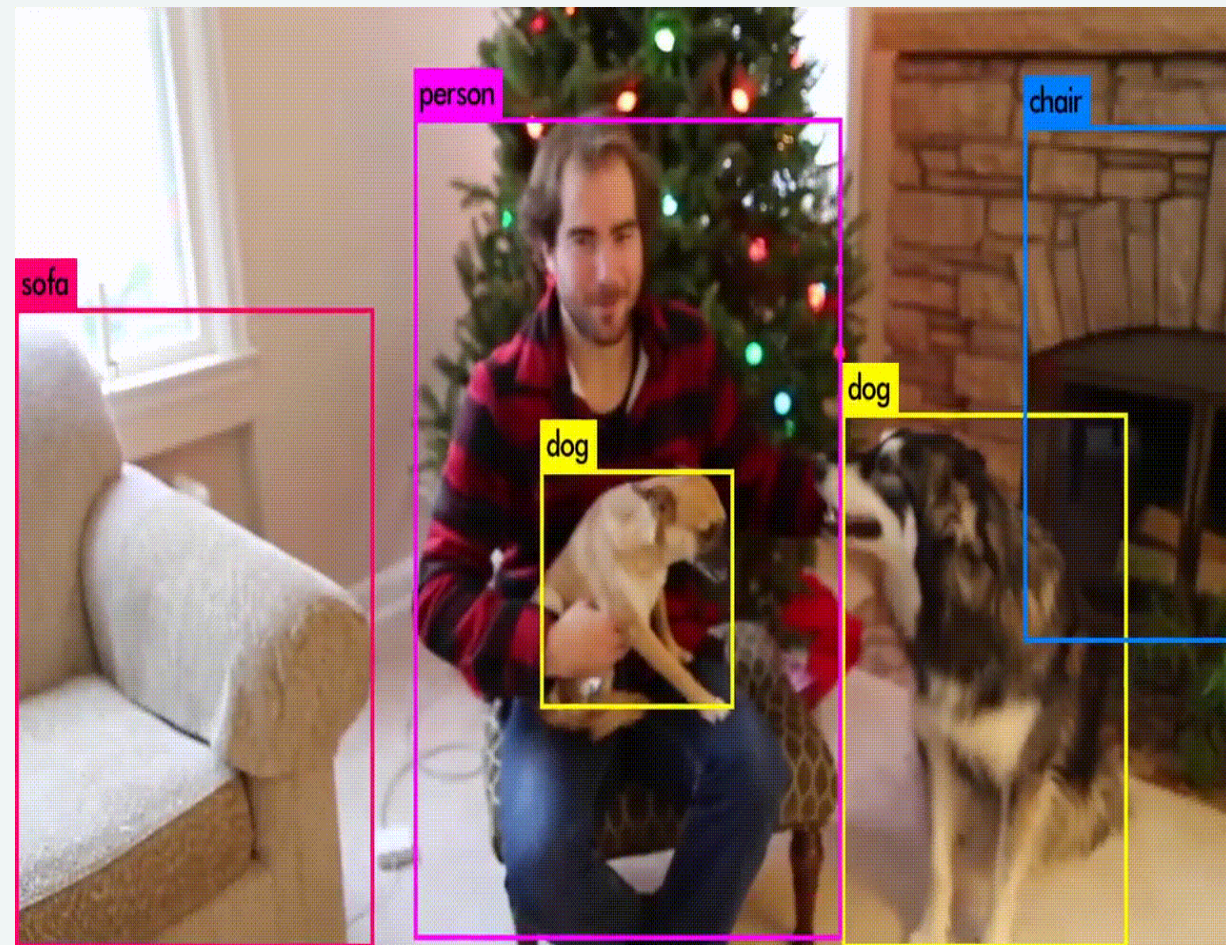
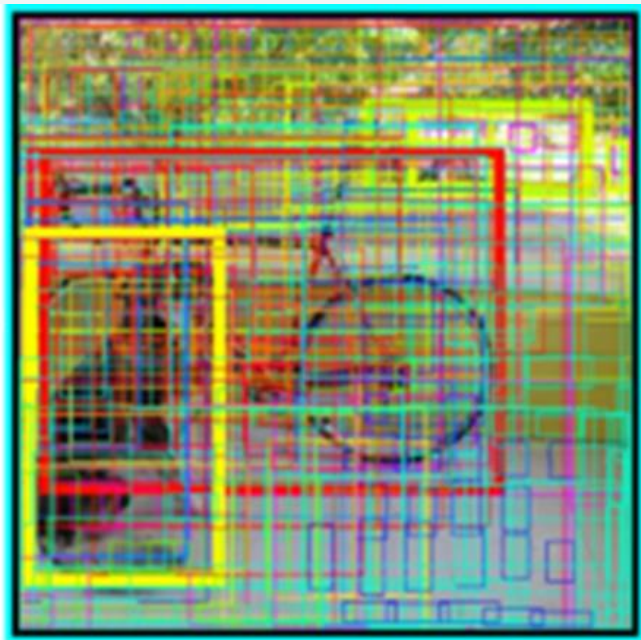
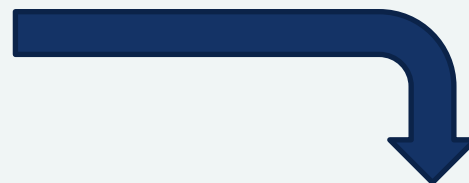
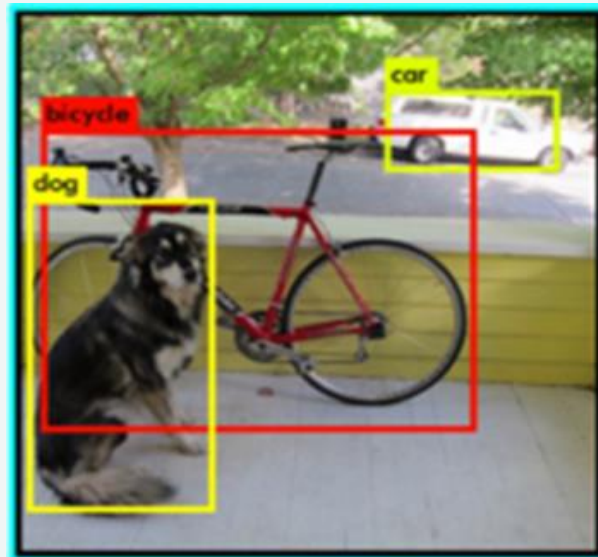
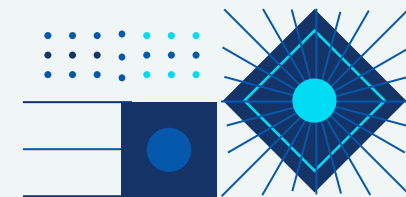
- Modelin her bir nesne için bir sınıflandırma ve bir konumlandırma yapar.
- Nesne konumlandırma için bir **Maximum** **Sınırlama** değeri kullanılır. Bu değerin değeri 0 ile 1 arasında olmalıdır. Eğer değeri 1'e eşit olursa, nesne konumlandırma işlemi başarılıdır. Eğer değeri 0'a eşit olursa, nesne konumlandırma işlemi başarısızdır.
- Ayrıca her bir bounding box için bir güven skoru hesaplar.

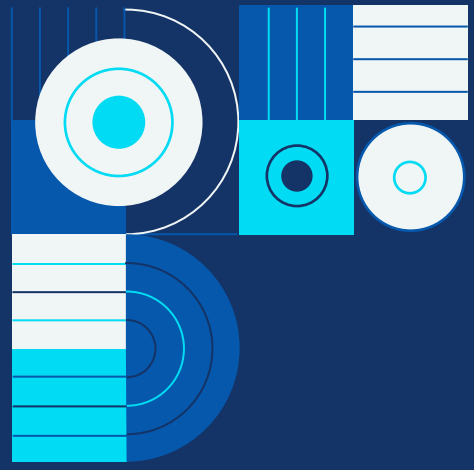






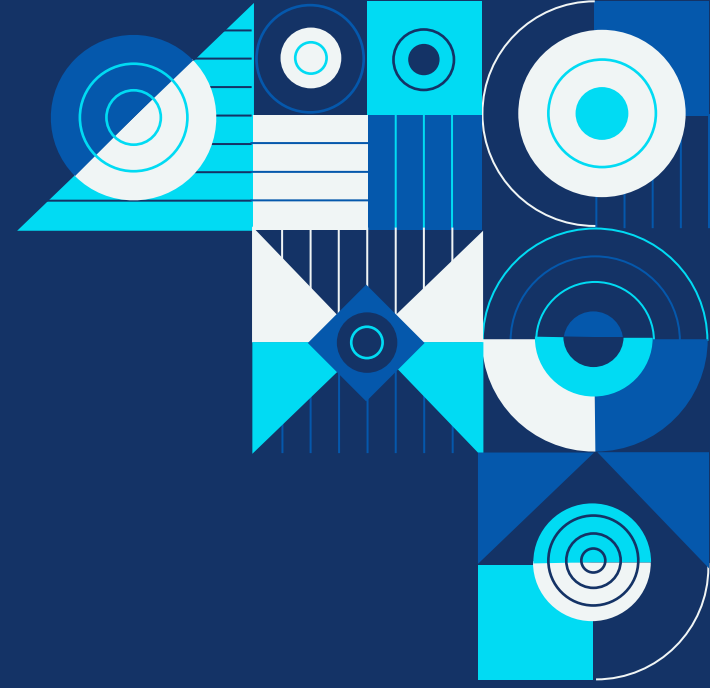




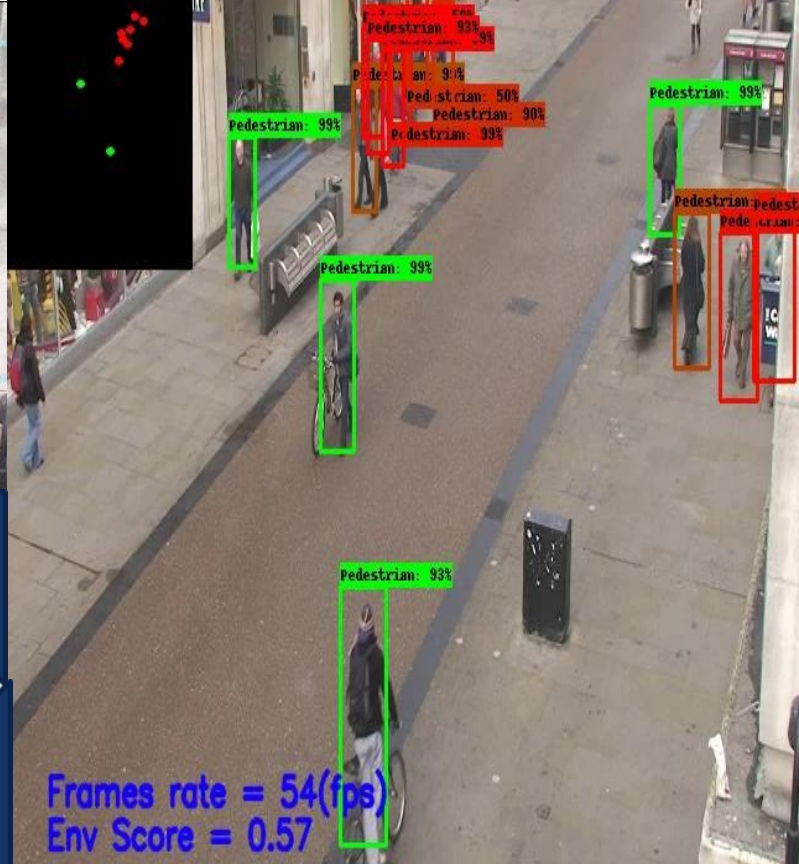


# 05

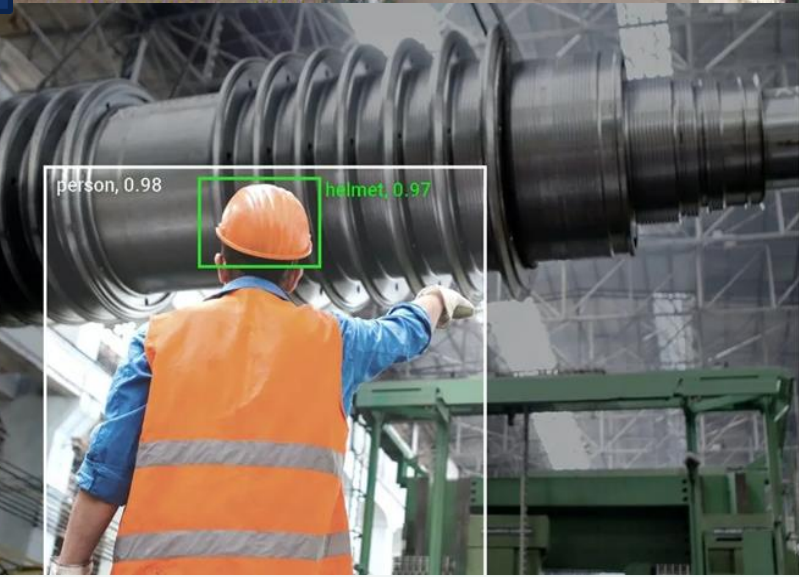
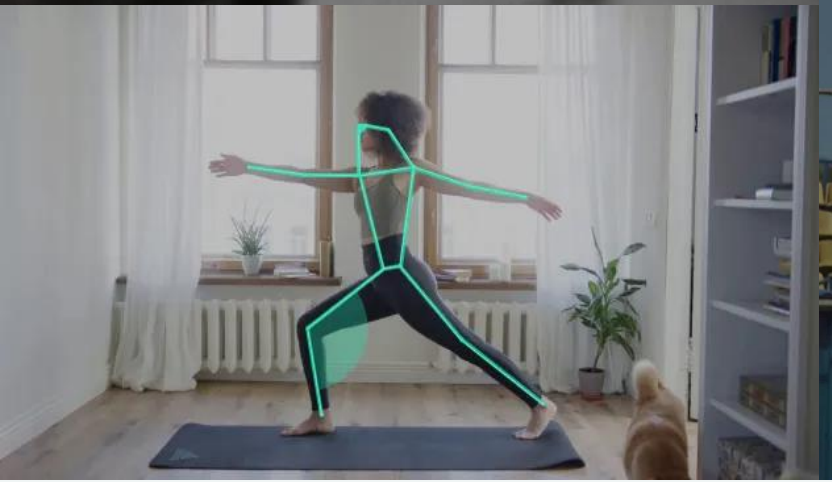
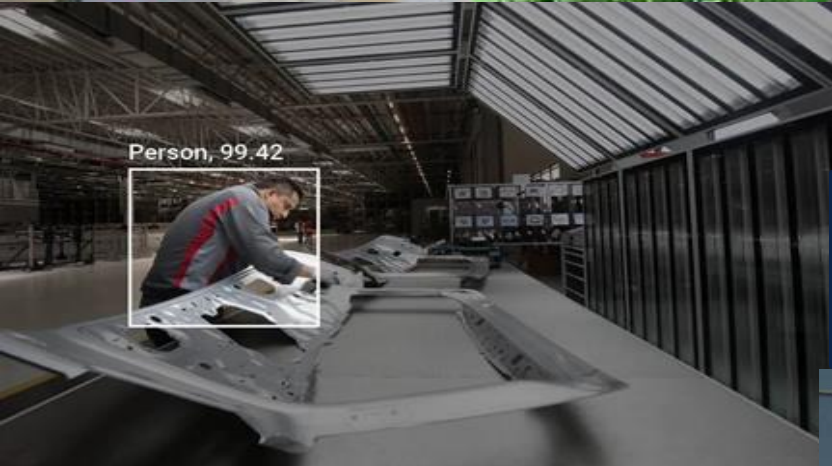
## KULLANIM ALANLARI



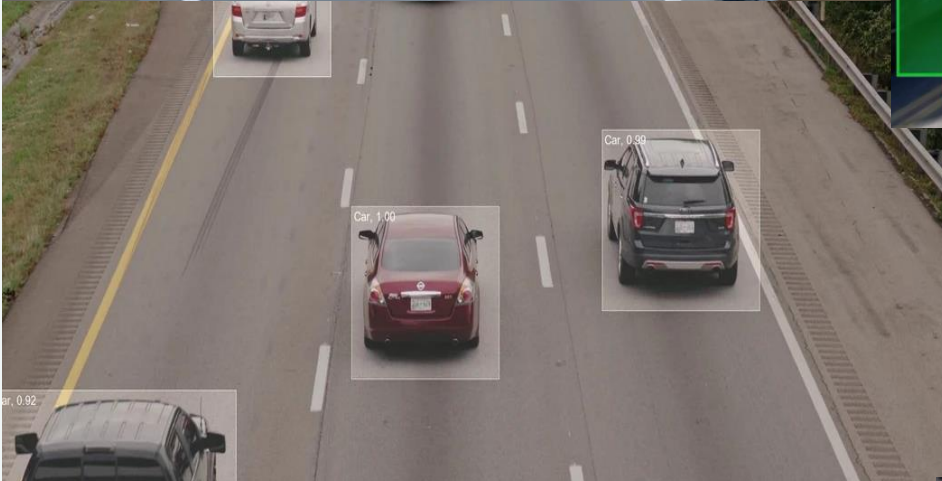
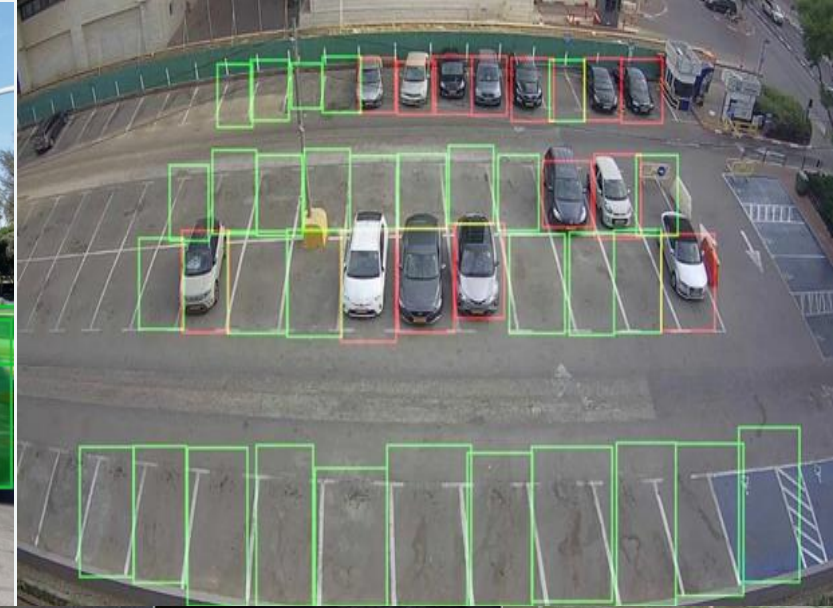
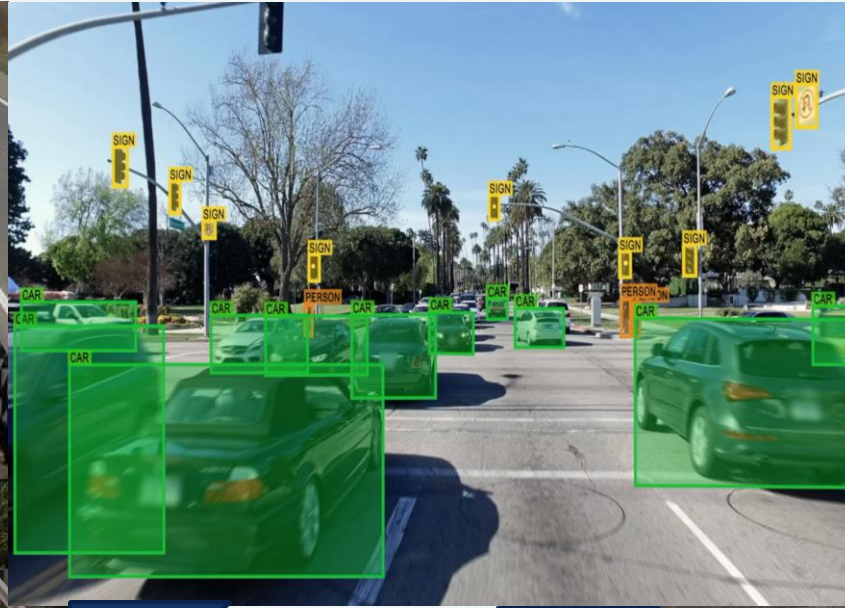
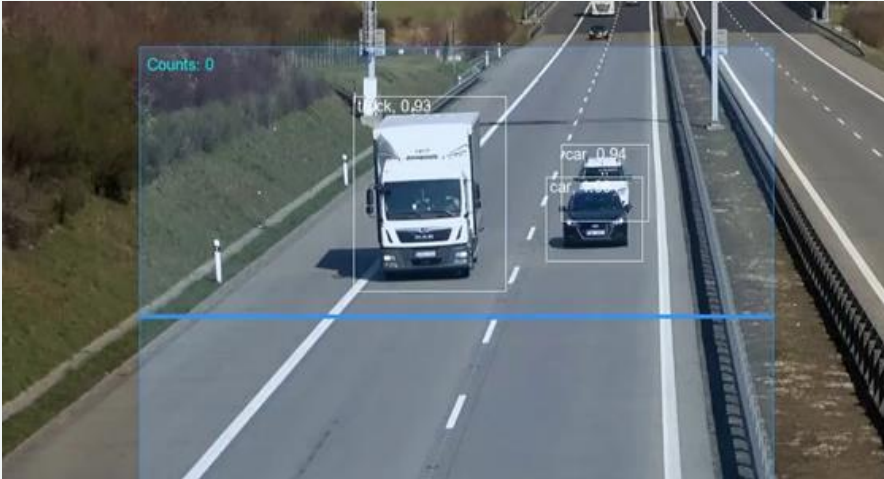




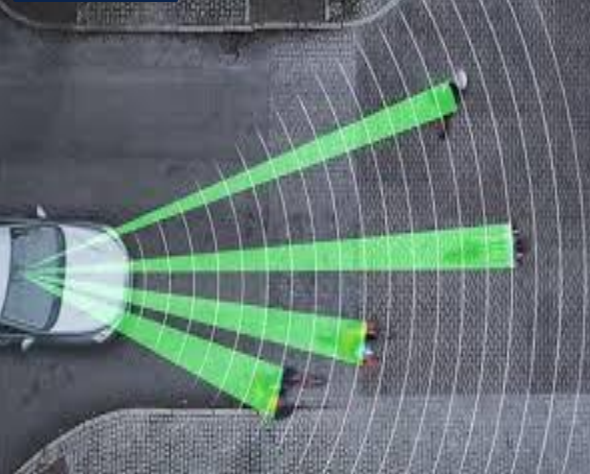
# İnsan Algılama



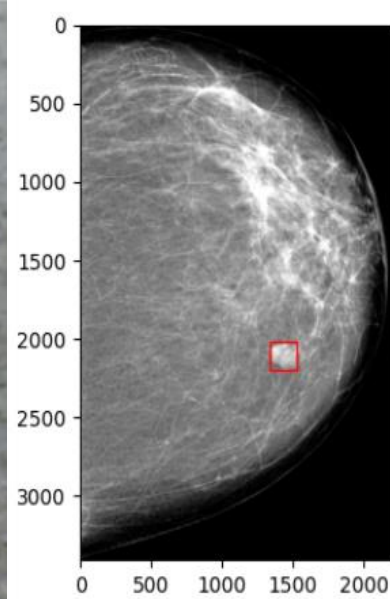
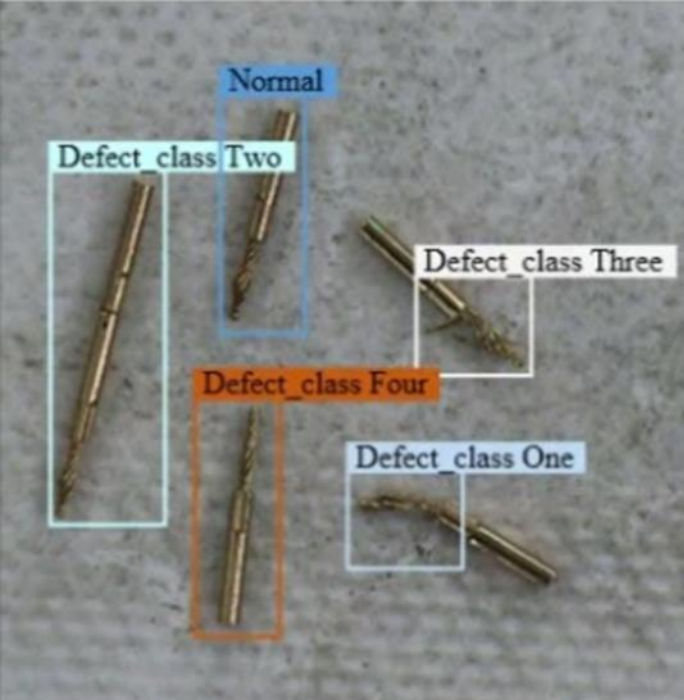




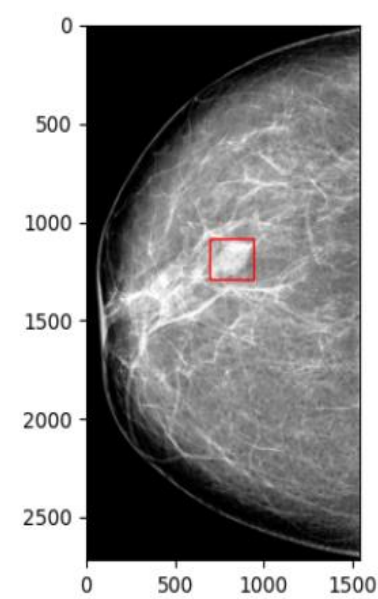
# Araç Tespiti ve Otonom Sürüş



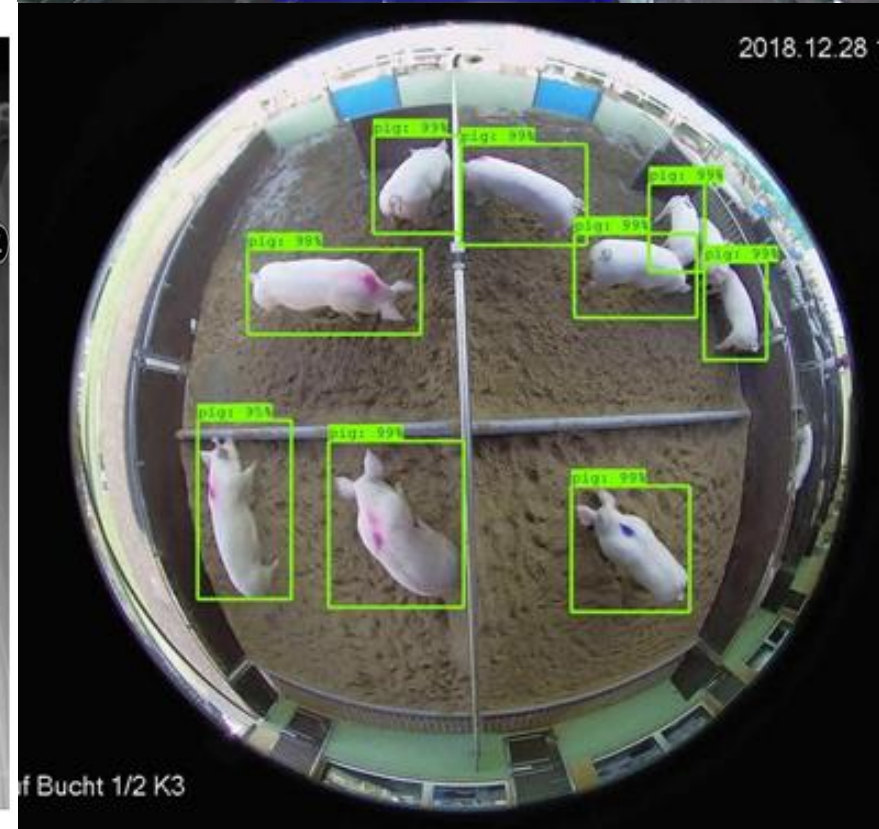
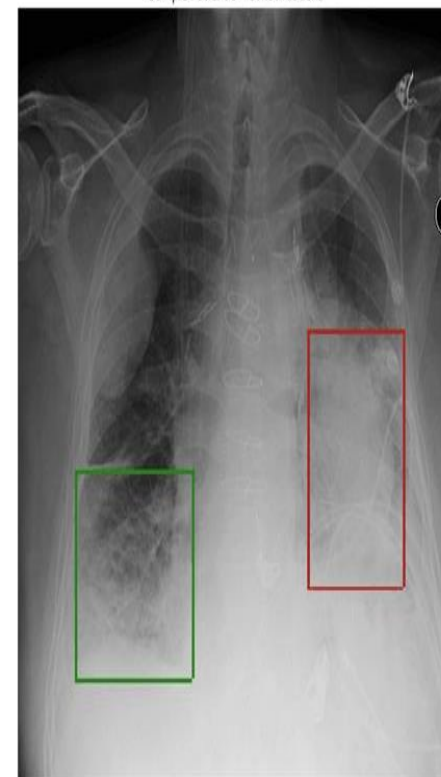
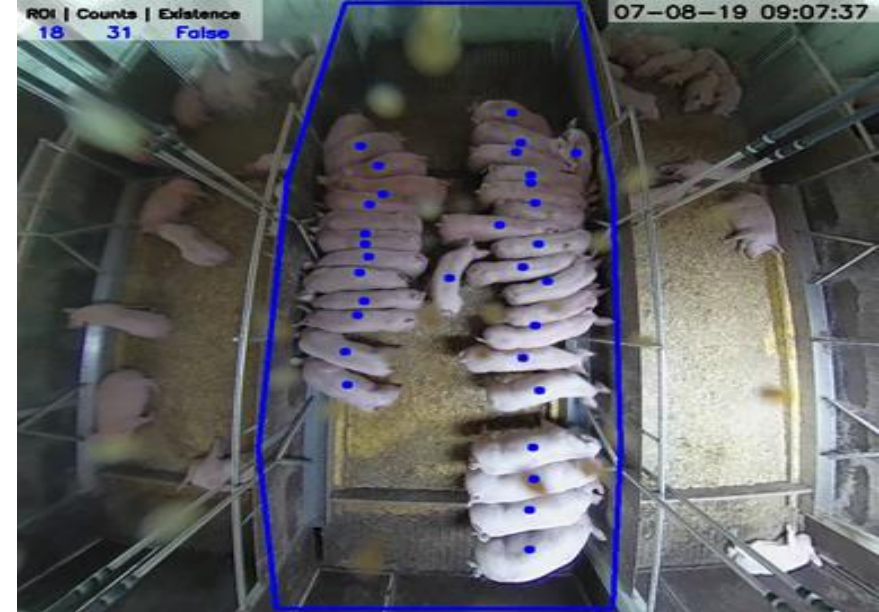




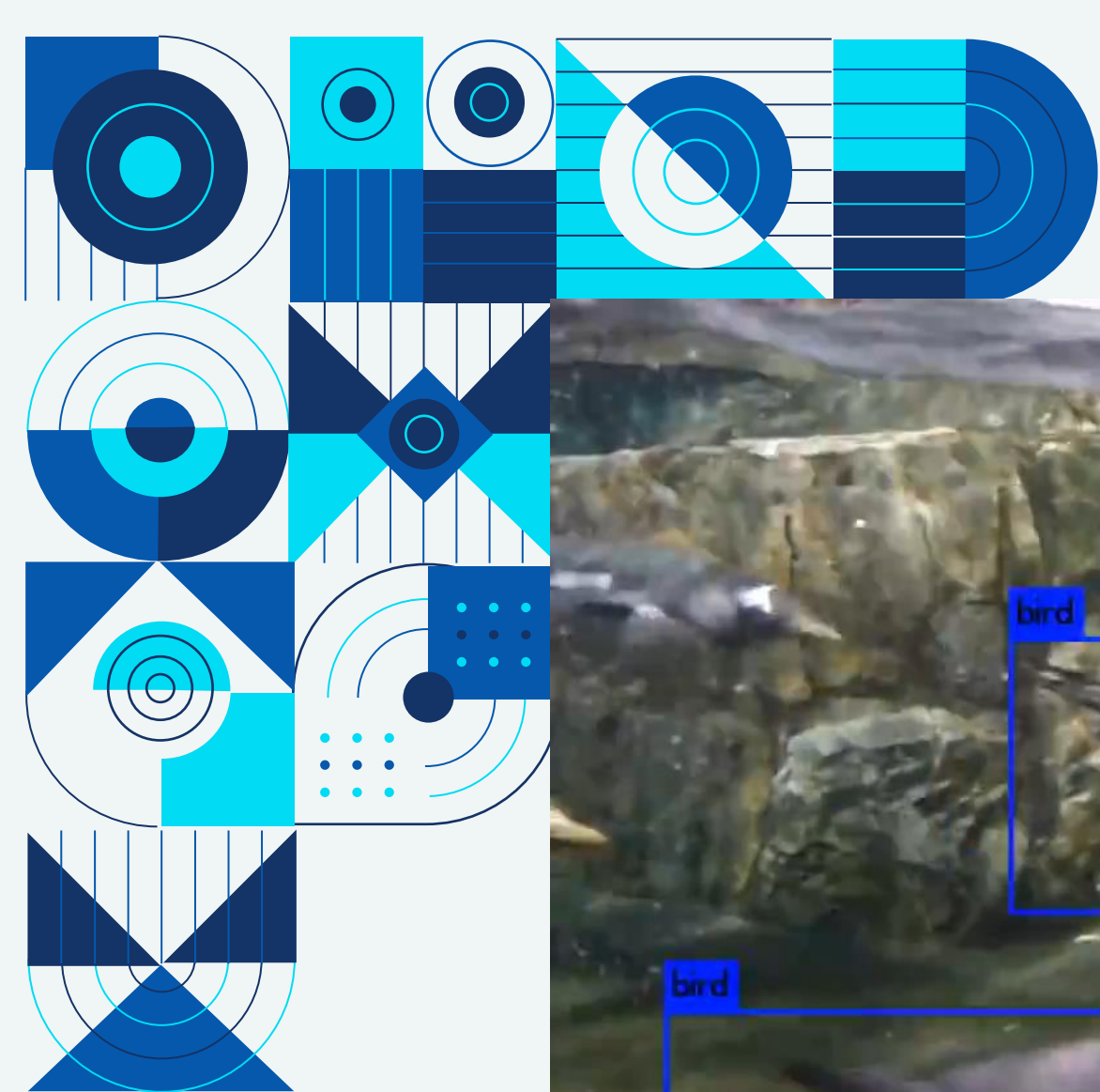
Sample Patient 4 - Ground-Glass Opacities



Sample Patient 5 - Consolidations







# Teşekkürler ! 😊

