



Real-time action localization

Eng. Ahmed ali hammam
Master Student - SRGE Member

**Workshop on Intelligent Systems and
Applications**

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SIA'17, Faculty of Computers and Information, Cairo University, Egypt



Overview

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- ❑ **Introduction**
- ❑ **Video Classification**
- ❑ **Action Classification (Recognition)**
- ❑ **Action Detection**
- ❑ **Action Localization**
- ❑ **Offline action localization Vs Online action localization**
- ❑ **Application**

Introduction

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Image Classification

- ▣ **Input : image**
- ▣ **Output : label**



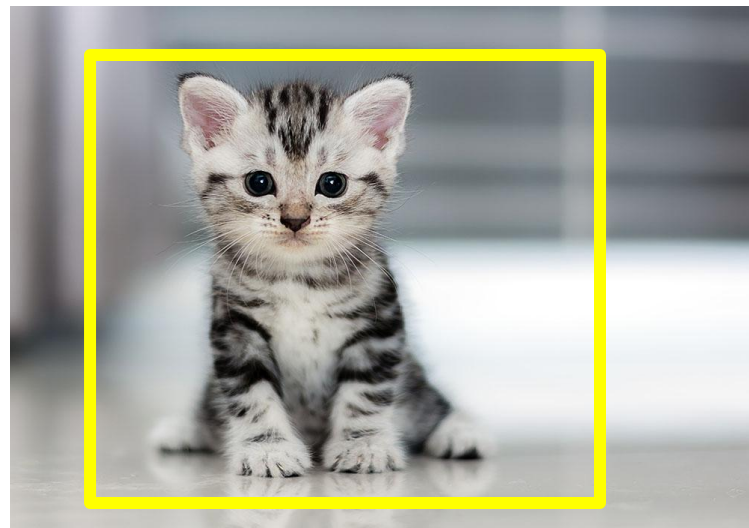
Cat

Introduction

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Image localization

- ❑ **Input : image**
- ❑ **Output : Box**

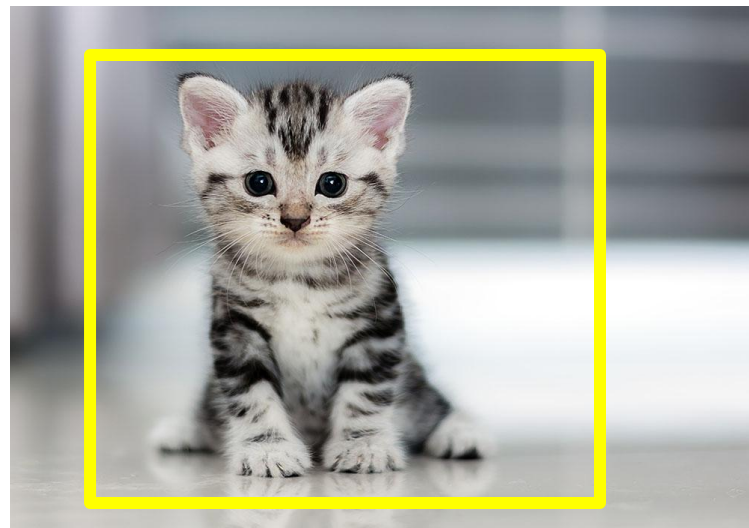


Introduction

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Image Classification + Image localization

- ❑ **Input : image**
- ❑ **Output : label + Box**

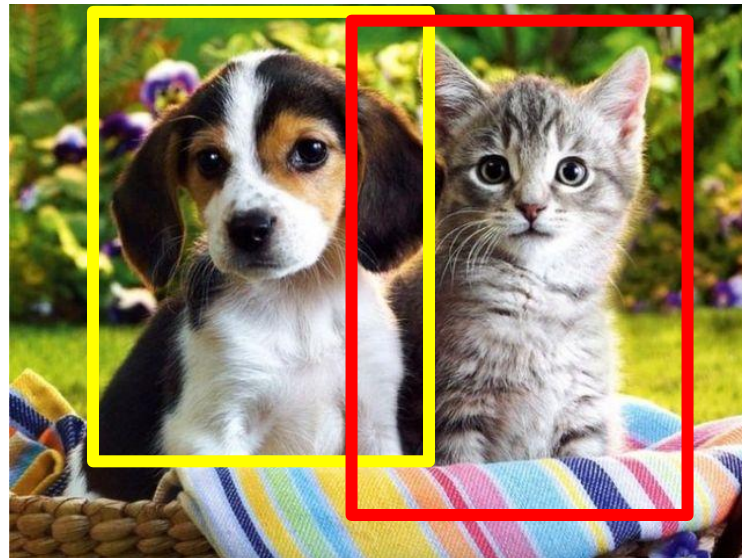


Cat

Introduction

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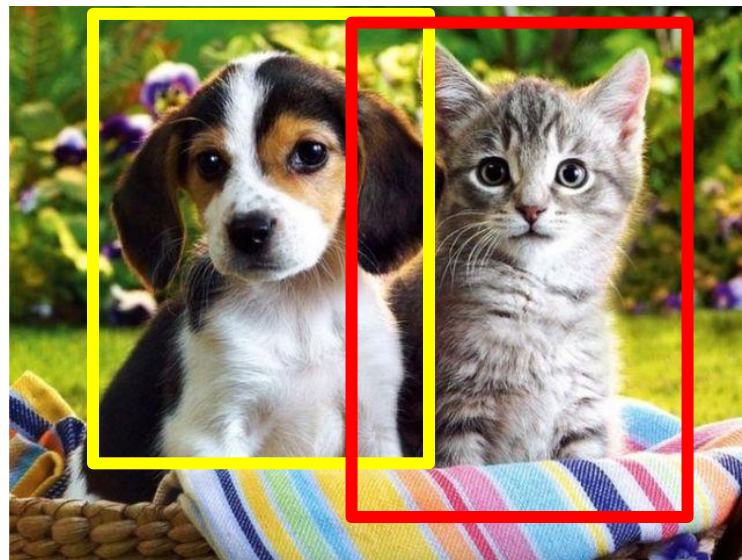
- Object Detection
 - ▣ Detect all available objects



Introduction

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- Object Recognition
 - ▣ detect all objects Localized them with a bounding box and label that bounding box



Dog

Cat

Video Classification

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- treat video frames as images (image classification for every frame).
- aggregate all classification scores .
- come up with a final classification for the video .

Action Classification

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- Classify the action on video (jump, Run , Walk)
- **Input : video**
- **Output : label of the action.**

Action Detection

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- ❑ Detecting the actions inside the videos
- ❑ Only Show a box on the action
- ❑ Where is the action in the Video ?

Action Localization

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- Where is the action in the Video ?
- What is the action in the Video ?

Offline Action Localization Vs Online Action Localization

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- offline action Localization
 - ▣ use of **the whole video** to make decisions.
 - ▣ Action Detection+ Action Classification = Offline Action Localization
- online action Localization
 - ▣ required to determine which actions **the current frame**.
 - ▣ **Not** using future information.
 - ▣ Action Detection + Action Prediction = Online Action Localization
- Processing time.

Application

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- ❑ intelligent surveillance systems
- ❑ auto-monitoring of patients
- ❑ health care assistance
- ❑ Gaming
- ❑ human-computer interaction
- ❑ robotic
- ❑ vehicle accident avoidance
- ❑ criminal activity analysis



Application

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Application

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Application

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Application

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Application

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Application

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Application

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Thanks and Acknowledgement



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