Object tracking in Videos

Krishna Palle & Shubham Arora

Input & Output

Inputs :

- Video
- User input of a bounding box of the object they want to track

Output :

- Frame by frame display of video with a bounding box of the object that they want to track

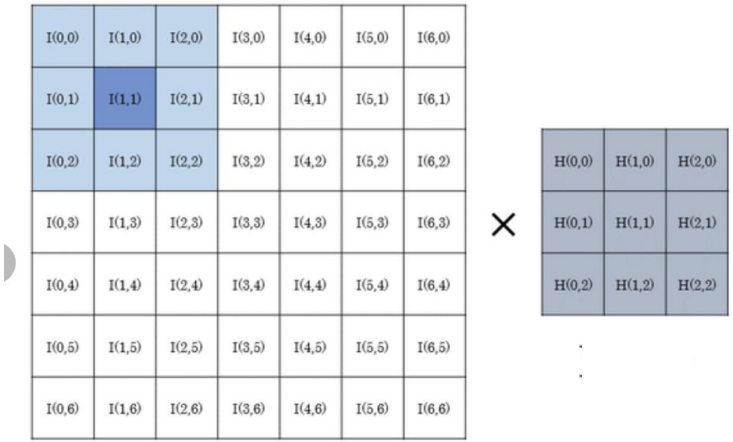
Project Breakdown

1. Apply edge detection algorithm on every frame of the video
2. Track the object in subsequent frames
3. Recursively perform step 1 and 2 for every frame in the video and display outputs

Note: Steps 1 & 2 can be parallelized

Track the object in subsequent frames

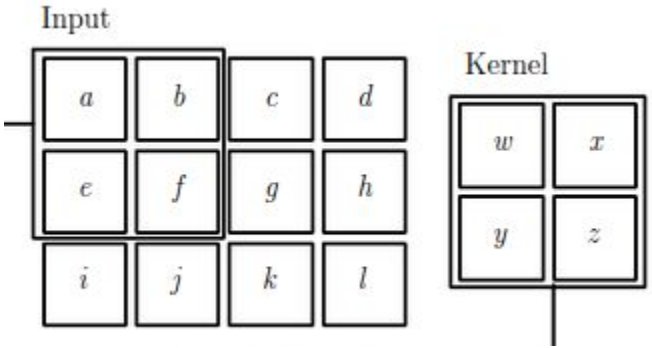
1. Find the ground truth i.e the object to track in the form of a bounding box and store the result of its edge detection
2. Compare the above ground truth with the edge detection output of the current frame at every coordinate and find loss
3. The box with the lowest loss to be the position of the object in that particular frame.



Objective

1. Parallelise the process to **track object position** in current frame
2. (Possibly) Parallelise **Edge detection** algorithm for faster performance
3. Compare the serial and parallel performance

Thank You!
Suggestions?


Input
a
b
c
d
e
f
g
h
i
j
k
l
Kernel
w
x
y
z

Objective

- Parallelise the edge detection algorithm for faster performance
- Parallelise the process to find the position of the object in the current frame
- Compare the performance of the code with and without parallelisation

Inputs :

- Video in which the user wants to track an object
- User input of a bounding box of the object they want to track

Output :

- Frame by frame display of video with a bounding box on the object that they wanted to track

Project Breakdown

Step1: (can be parallelized)

- Apply edge detection algorithm on every frame of the video

Step 2: (can be parallelized)

- Find the ground truth i.e the object to track in the form of a bounding box and store the result of its edge detection
- Compare the above ground truth with the edge detection output of the current frame at every coordinate and find loss
- The box with the lowest loss to be the position of the object in that particular frame.

Step 3:

- Recursively perform step 1 and 2 for every frame in the video and display outputs