VIDEO TRACKING

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What’s in?!

Video tracking:

- Motivation
- Algorithm
- Results
- Conclusion

VIDEO TRACKING: MOTIVATION

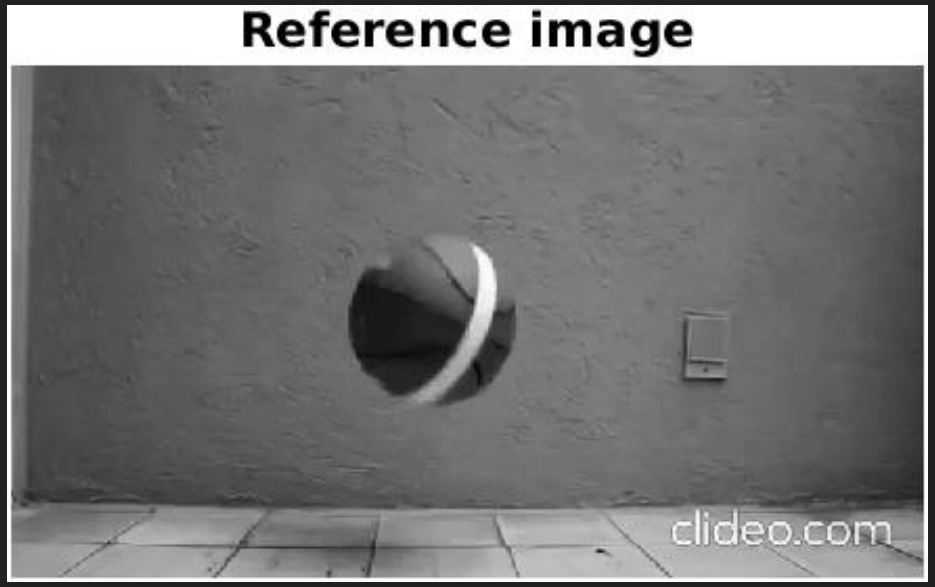
- The tracking algorithms helps to navigate a target in a video throughout the frame!
- The objective of the project is to track the object in an image based on match filtering.
- The major test comes when there is a blurring or noisy effect.
- The video used for the tracking algorithm has blurring effect that confuses the algorithm.
- Let’s dive in!

ALGORITHM:

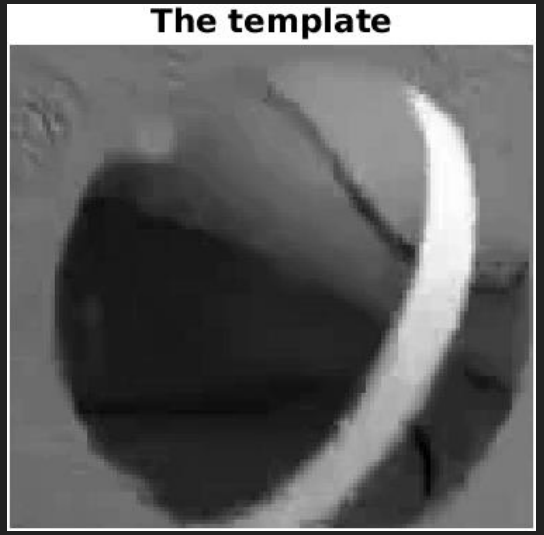
1. The initial image is taken as the reference.
2. Then we get the template by their axes after cropping.
3. We find the normalized correlation for each block of the next image. Each block is of the same size as the template.
4. We find the maximum correlating along the row and the column. This shows which best block that is matching well with the template.
5. Then we construct a box around the detected target.
6. This continues for each frame.
7. For each time, the plot of the frame with the tracker is saved in a video variable.
8. Thus we write the video variable as the mp4 video.

THE INPUT VIDEO: The video is in the repository (Ball bouncing reference)

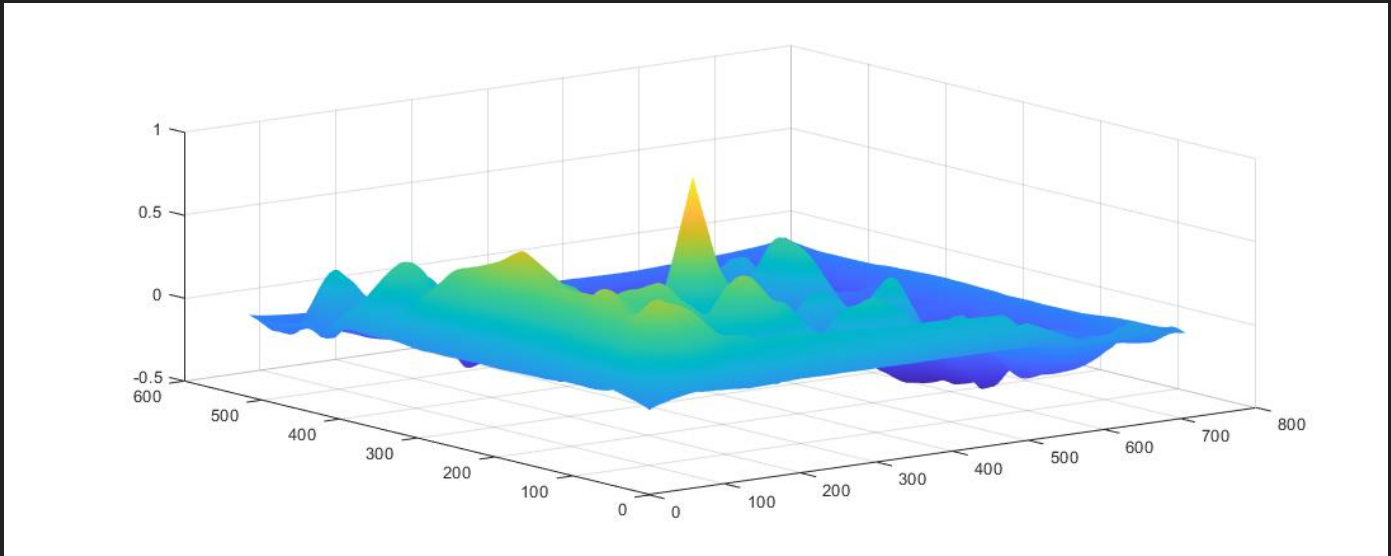
REFERENCE IMAGE



THE TEMPLATE

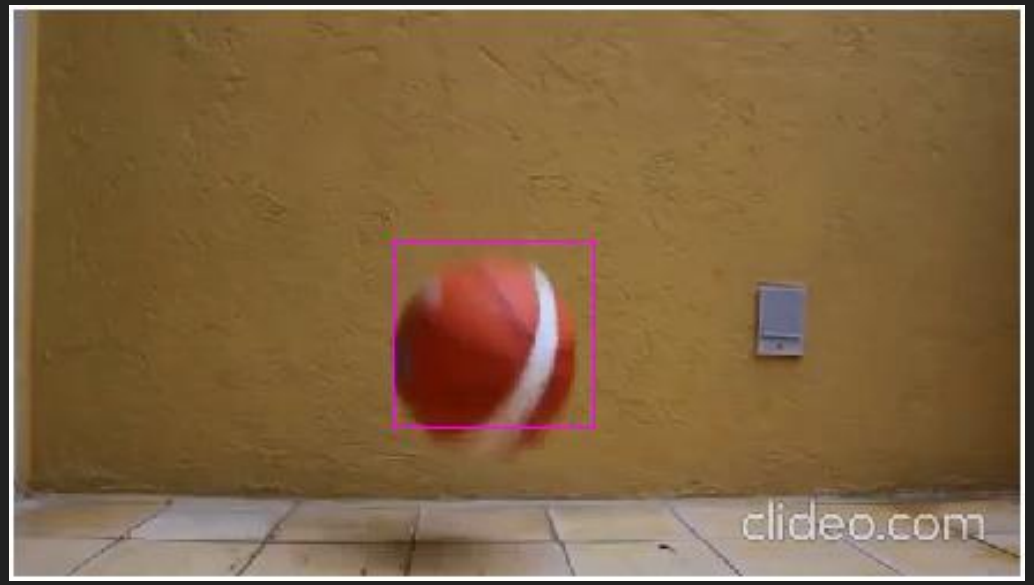


CORRELATION:

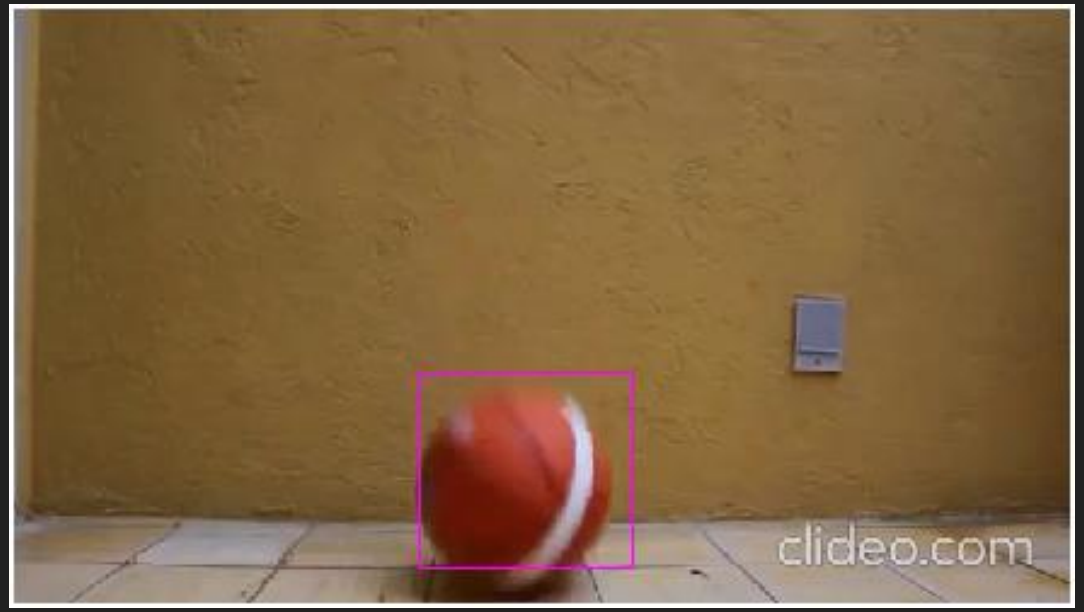


TRACKING THE FIRST FRAME

TRACKING THE OBJECT IN THE FOURTH FRAME



ANOTHER RANDOM FRAME



And then for all…..

THE OUTPUT VIDEO is in the repository with filename : testmovie2.mp4

CONCLUSION FOR THE TRACKING ALGORITHM:

This could be applied for various applications!

I am looking forward to apply this algorithm for organ tracking during robotic surgery!