

# Reduce amount of video by filtering on object similarities

## Background

With a large video surveillance setup having hundreds or even thousands of cameras a lot of video ends up being recorded. Most of the video is completely irrelevant and when investigating an incident just finding what is relevant can be very hard.

Imagine a city surveillance setup where a terrorist bombs a building. Tracking the terrorist around the city both before and after the bomb exploded requires a lot of video to be examined. If the terrorist is to be caught, time is critical and often the solution today is simply to have a bunch of people go through the video manually.

It would be of great help if the video surveillance system could somehow help limit the amount of video to go through. It could for instance do so by having the user mark, in the video, an object of interest (e.g. a person or car) and then have the system filter the video down to only those sub clips that contain the same object or at least something that is similar to it. The match does not need to be exact; it just needs to reduce the amount of video that has to be investigated to a more manageable size. If it can work cross cameras, it will be even more useful.

## The project

In this project, we want to investigate how to make an algorithm that can reduce the amount of video that needs to be looked into by filtering it on similarities with a specified object. If it is of any help, it is okay to help the algorithm by instructing it what kind of object it is; e.g. a person or a car.

Even though this algorithm will be running as a post step, performance is very important. It should not take hours to filter the video even if we are talking about hundreds of cameras with 60 days of recordings. It is okay to generate metadata on the fly when recording the video if that makes the filtering faster.

It is expected that a standalone prototype of the proposed algorithm is implemented that shows how filtering of a video feed works. An analysis of how robust the algorithm is and how it performs, is expected.

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