VSS

Video storage system(VSS) is designed for video analytics that decouples high-level video operations and the low-level details. It has responsible for: manage data efficiently, caching the data efficiently and managing the overlapping fields. VSS works on VDBMS so that developers focus only on application logic. Storing the video on disk is complicated and the queries are highly expensive. VSS exposes its api for read and write modules in the specified format, encoding and resolution. VSS uses SMT resolver to select the best view and prune the useless views. It also reduces the space occupied by using joint compression optimization. It helps in finding video overlap by using a feature vector and resulting fingerprint index. Todays video processing are optimized for entire video but is not made for optimizing based on subqueries. VSS can effectively use to produce the efficient desired frame. It generates the data based on the region of interest(ROI) and the writes are async.
Effectively the paper has the following contribution: exploit the physical properties of video optimize the overlapping regions and optimally selecting from many materialized views and protocol for caching multiple versions of same video.

Comments:

I think it is a very interesting paper because I never thought there could be a merger of sql with video.
The prototype needs refinement since no-overwrite policy and updates. Also, since writes are not visible until the file is closed, are there any locking mechanism(mutex or semaphore) while the file is opened?
Is VSS just for vehicles or it is just an example use case? Because I couldn't find any other examples and the entire paper was narrated from pov of vehicle. Also, if that's the case, yolov4 has different settings for detecting small, medium and large object based on the kernel size. If they are just focused on identifying the vehicle, they can remove the unnecessary layers that are not needed to make the model even lighter.
It was also smarter of them to use yolov4 since they did mentioned about supporting real-time streaming and yolo is a really light model.