2019/05/19 10:08:55 PM

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Linear constant velocity used to approximate the interframe displacements of all the objects independent of the object and camera motion

Object state represented by the location of the centroid, a scale/area and the corresponding velocities along with the aspect ratio which is kept fixed for each object

Velocity components are solved using a Kalman filter using the associated detection and using the linear velocity model if there is no associated detection

Association done using the Hungarian algorithm on the basis of the intersection our union between all the directions and the predicted bounding box locations of existing targets

New targets are added whenever a detection is found whose intersection over union is less than some threshold and then it remains in the probationary state for a while to see if new detections are associated with it

targets are eliminated if no detection is associated with them for a certain number of frames
This number of frames is set to 1 in the paper to compensate for the poor predictive ability of the linear constant velocity model as well as to maintain high efficiency
The target that gets wrongly removed simply gets added as a new target which leads to high number of ID switches but doesn't affect any other metric

Surprisingly competitive performance as also seen in the case of the IOU tracker which seems to be more or less the same as this one except in a few details

- Provides better MOTA, ML, FP than many far more complex trackers including the MDP tracker and many batch algorithms
- its main shortcoming seems to be in the all large number of ID switches but even that is smaller than many batch methods

Faster RCNN/VGG 16 detector is used