

ADVERSARIAL TRANSFER NETWORKS FOR VISUAL TRACKING

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Problem & Motivation

01

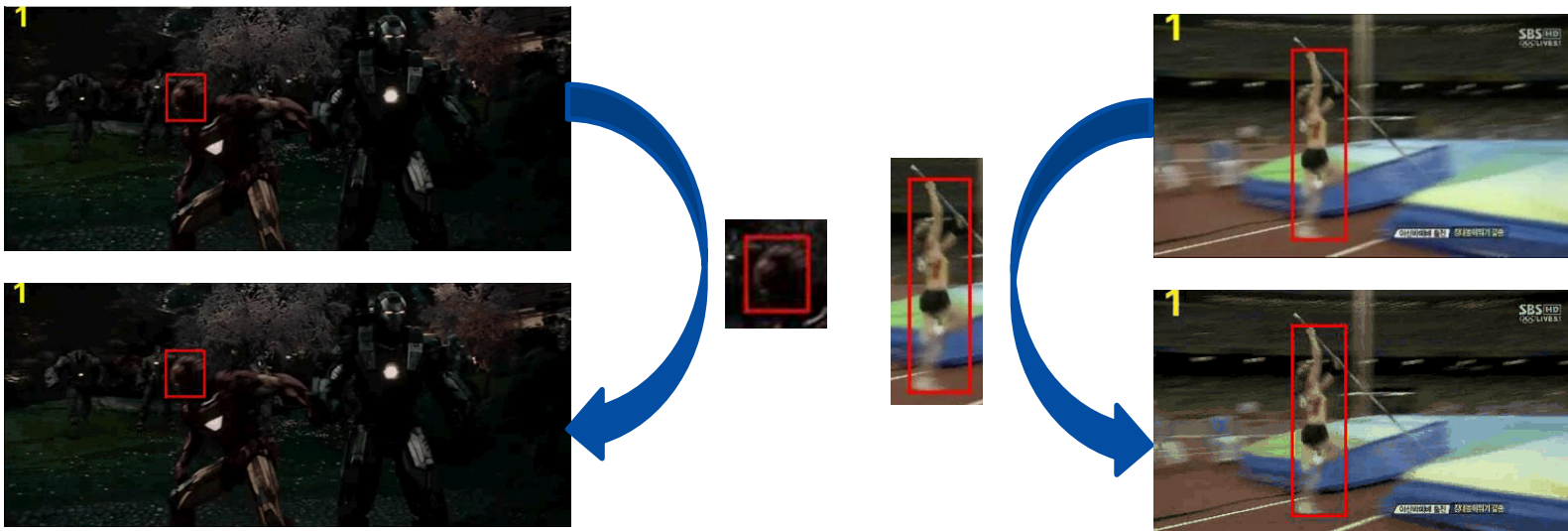


Tracking Problem

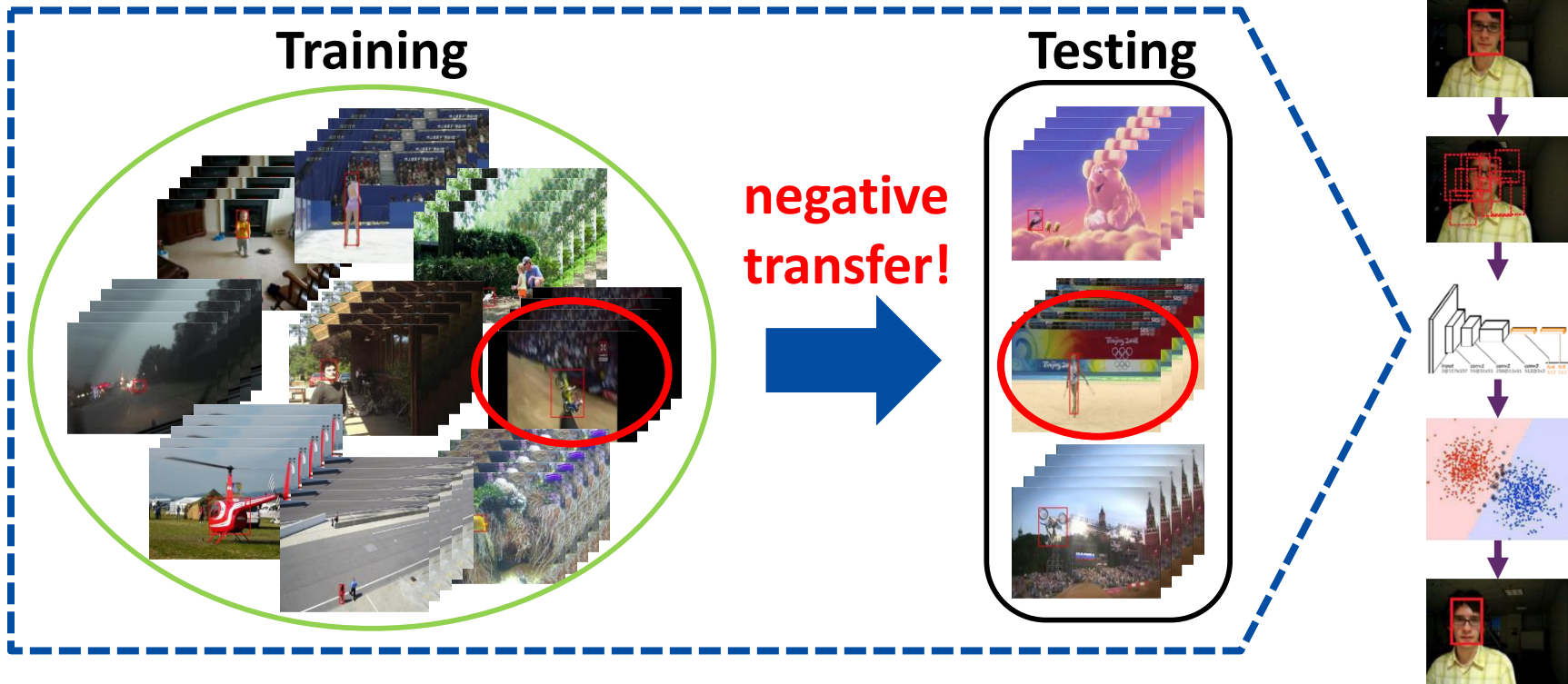
- Known: the initial state (position and size) of the target in the first frame of the video
- Solve: the subsequent state of the target in each subsequent frame of the video
- Cue: Appearance & Continuity

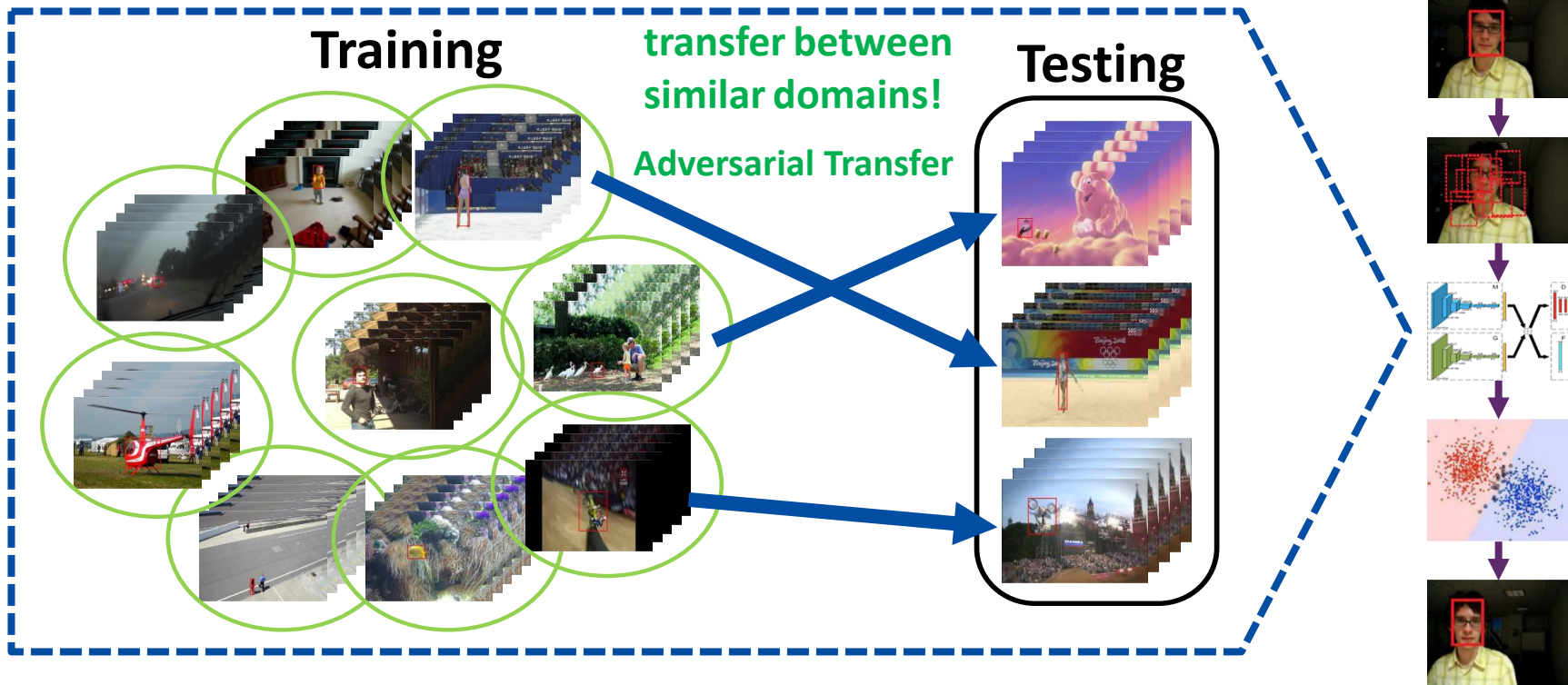


- Different tracking objects
- Drastic appearance changes

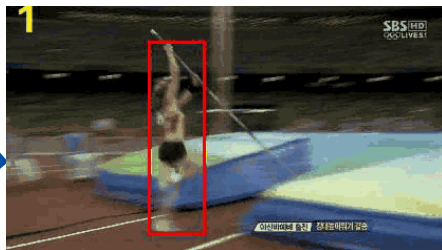


AU ha Deep Learning-based Tracking by Detection Framework





Testing video



Similar video in the training set



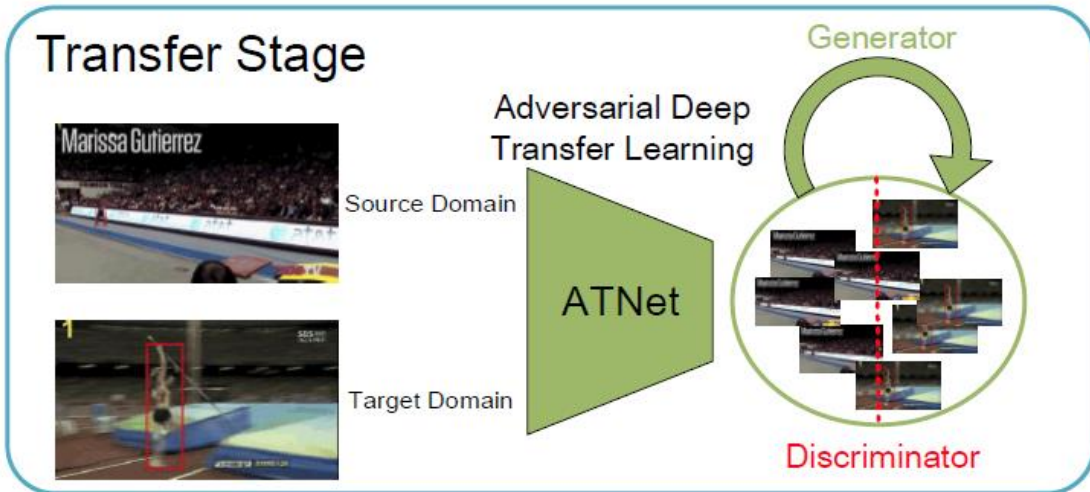
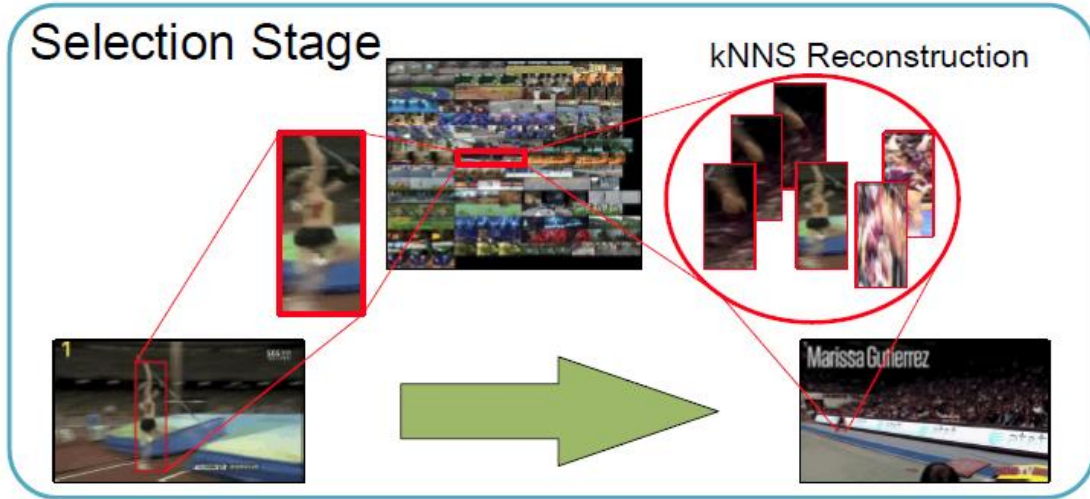
Approach

02

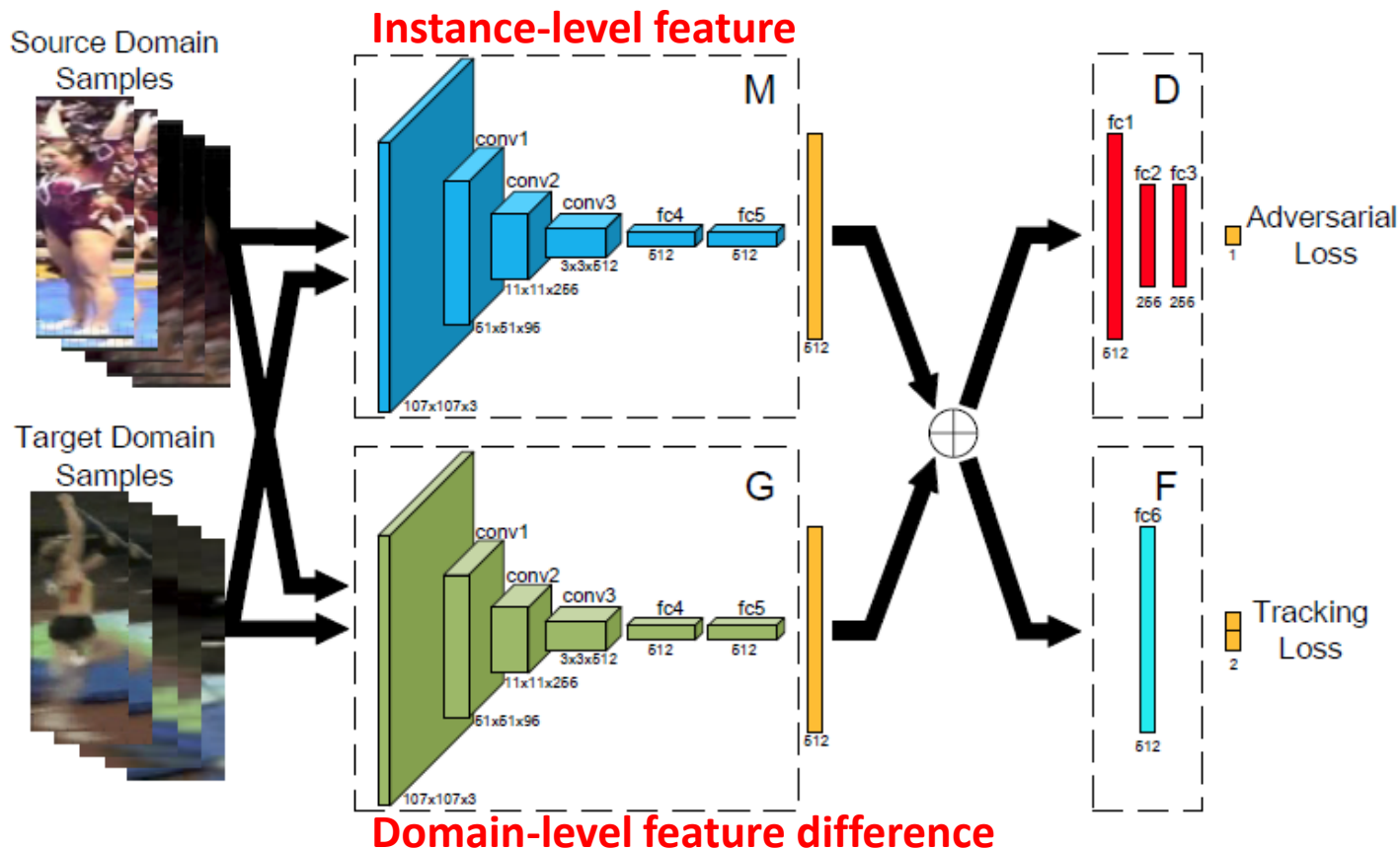


AU ha Two Stage Framework

- Selection Stage
 - Find the most similar sequence.
- Transfer Stage
 - Make the features indistinguishable.



Adversarial Transfer Networks (ATNet)

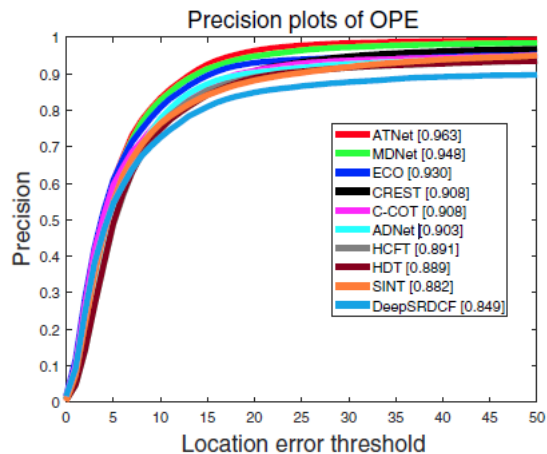


Experimental Results

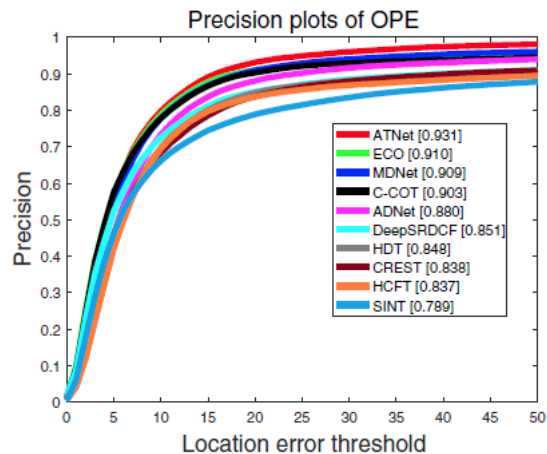
03



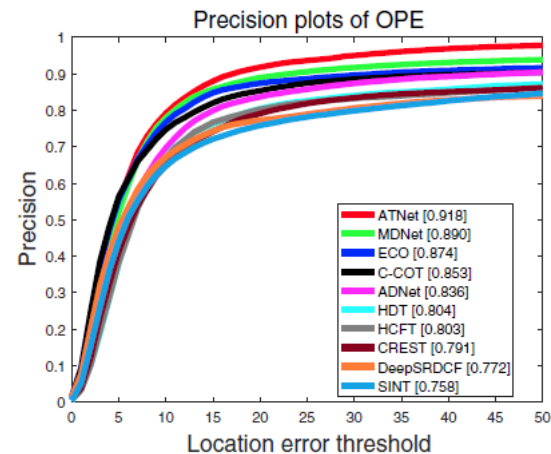
OTB-2013



OTB-100

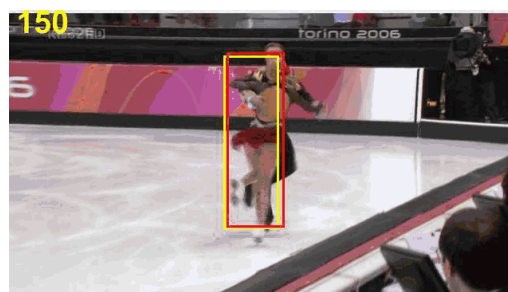


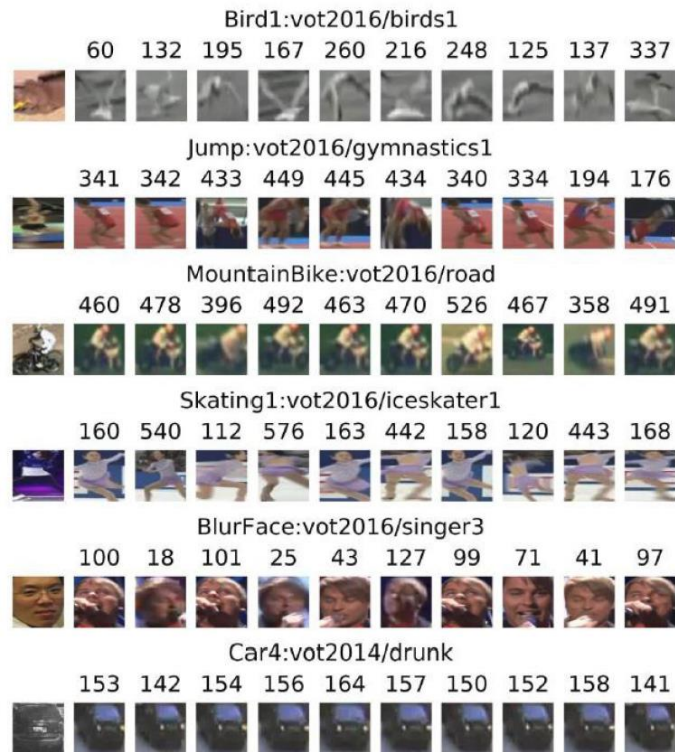
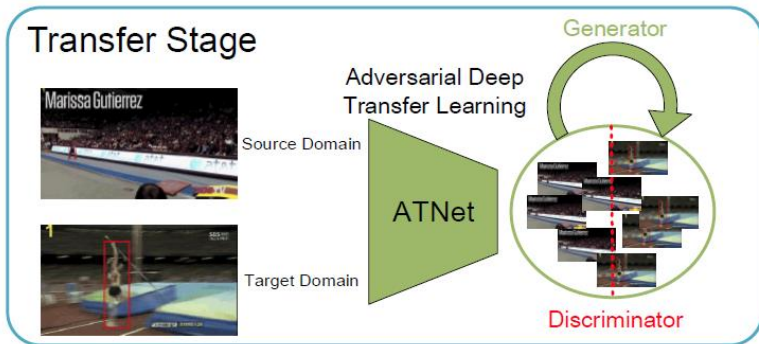
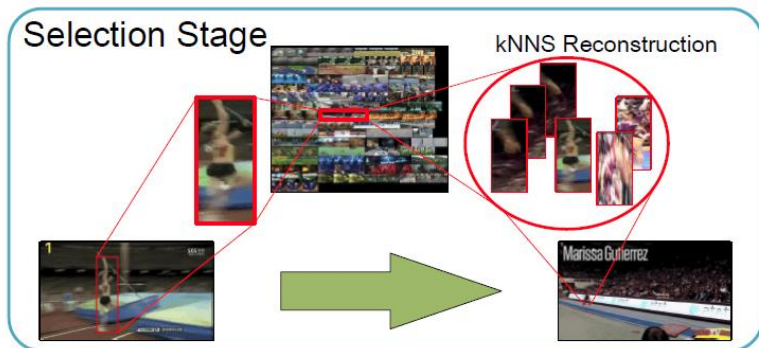
OTB-50



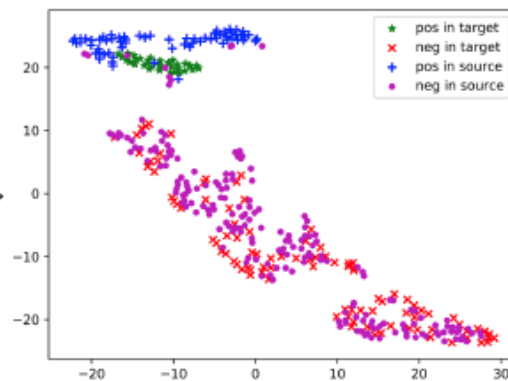
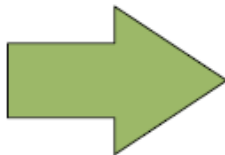
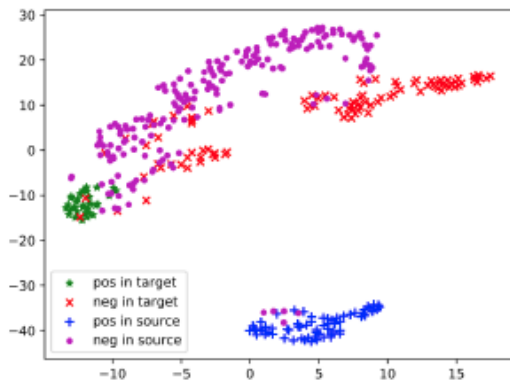
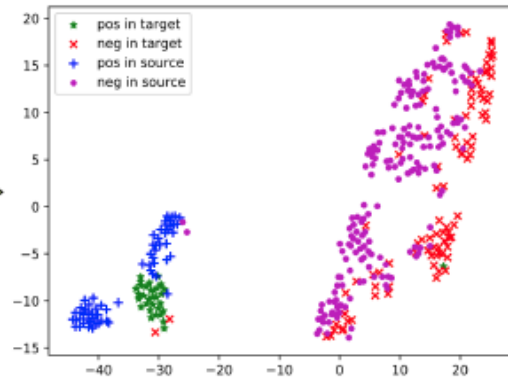
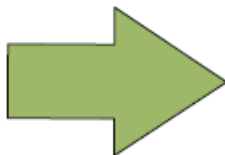
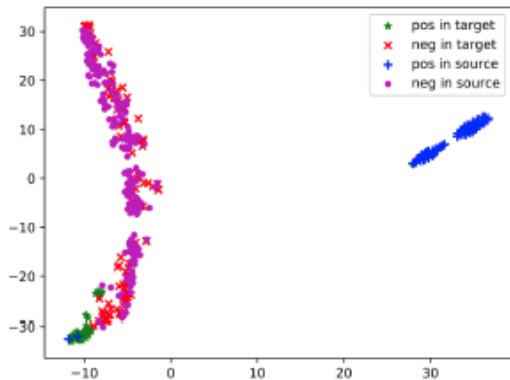
■ Our Method(adversarial transfer)

■ MDNet(has negative transfer)





Visualization of Transfer Stage using t-sne





THANK YOU FOR YOUR ATTENTION
