

Online Deeper and Wider Siamese Networks for RGB-D Long-term Visual Tracking

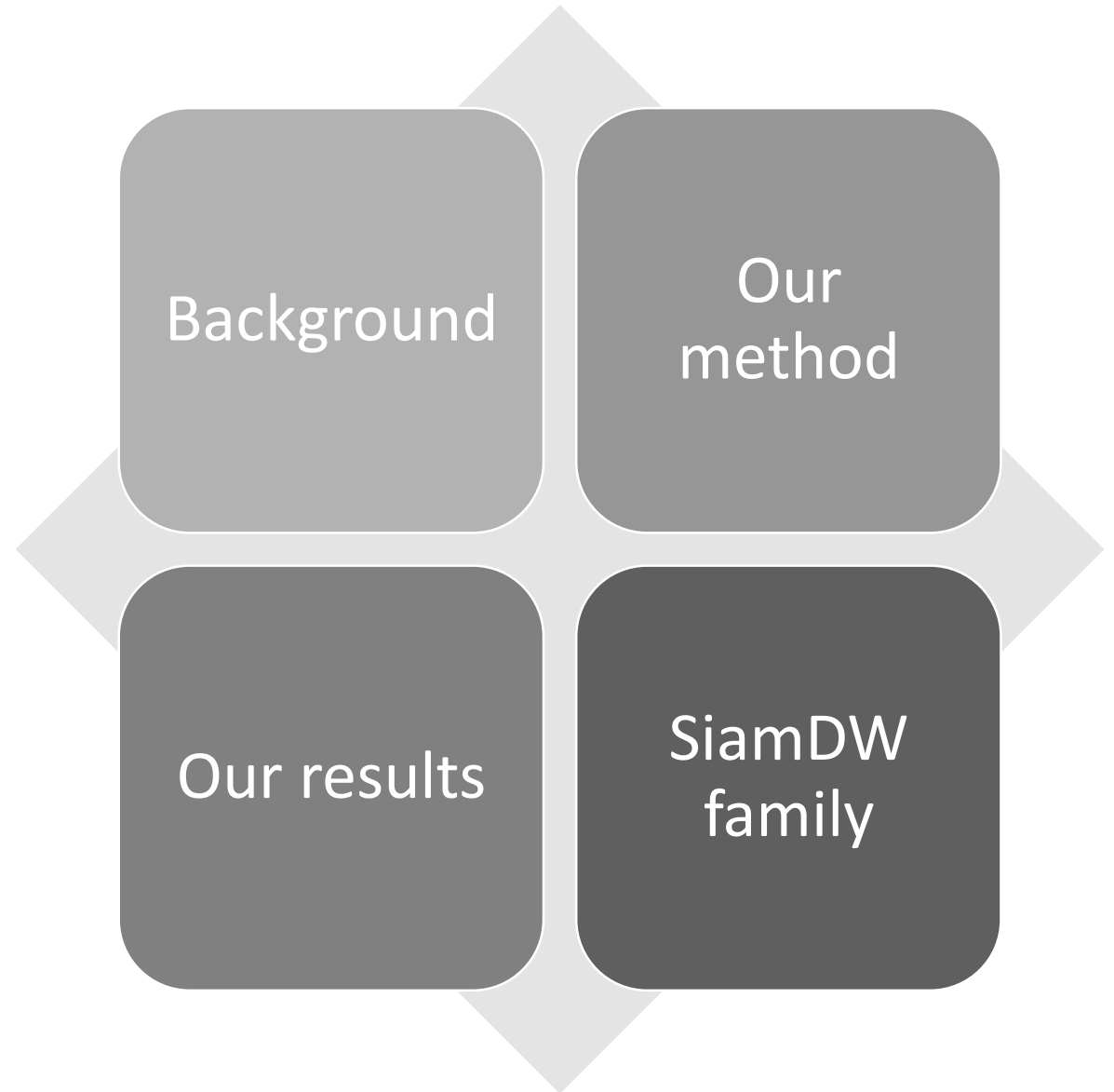
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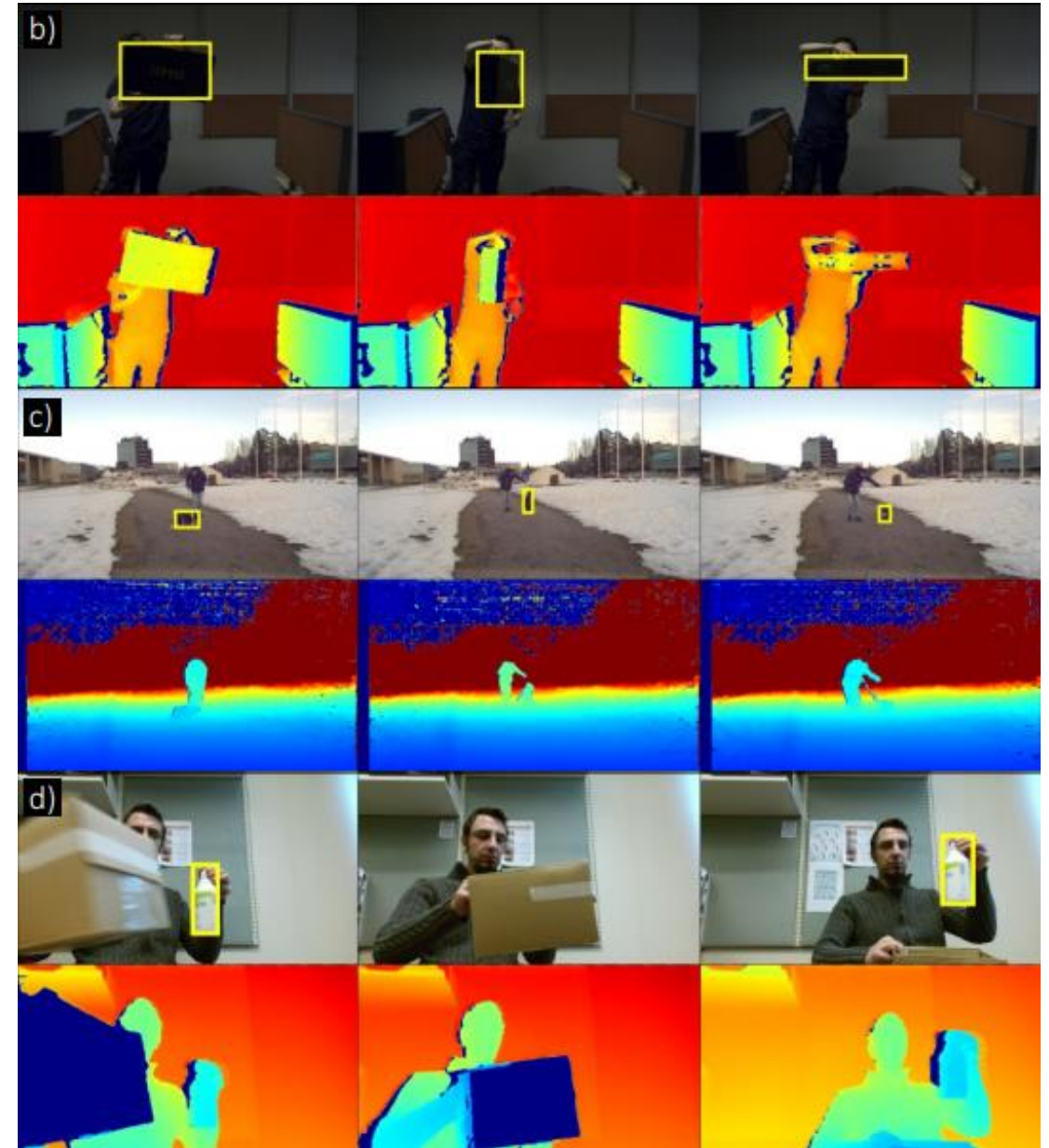


Outline

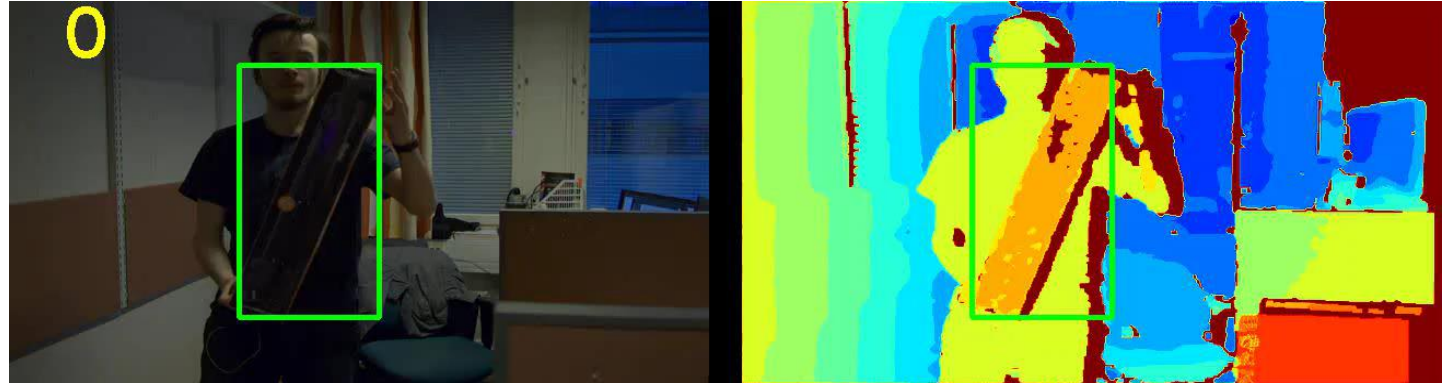


VOT2019 RGBD overview

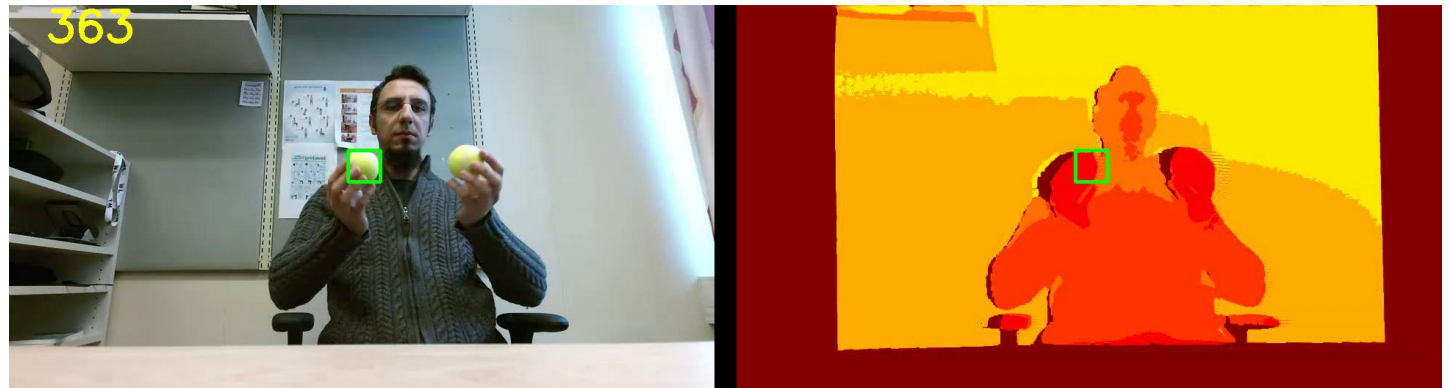
- 80 videos(each has around 1500 frames)
- Category varies, including indoor and outdoor sequences captured under unconstrained conditions.
- Metric: AUC (in notice email is F-score)



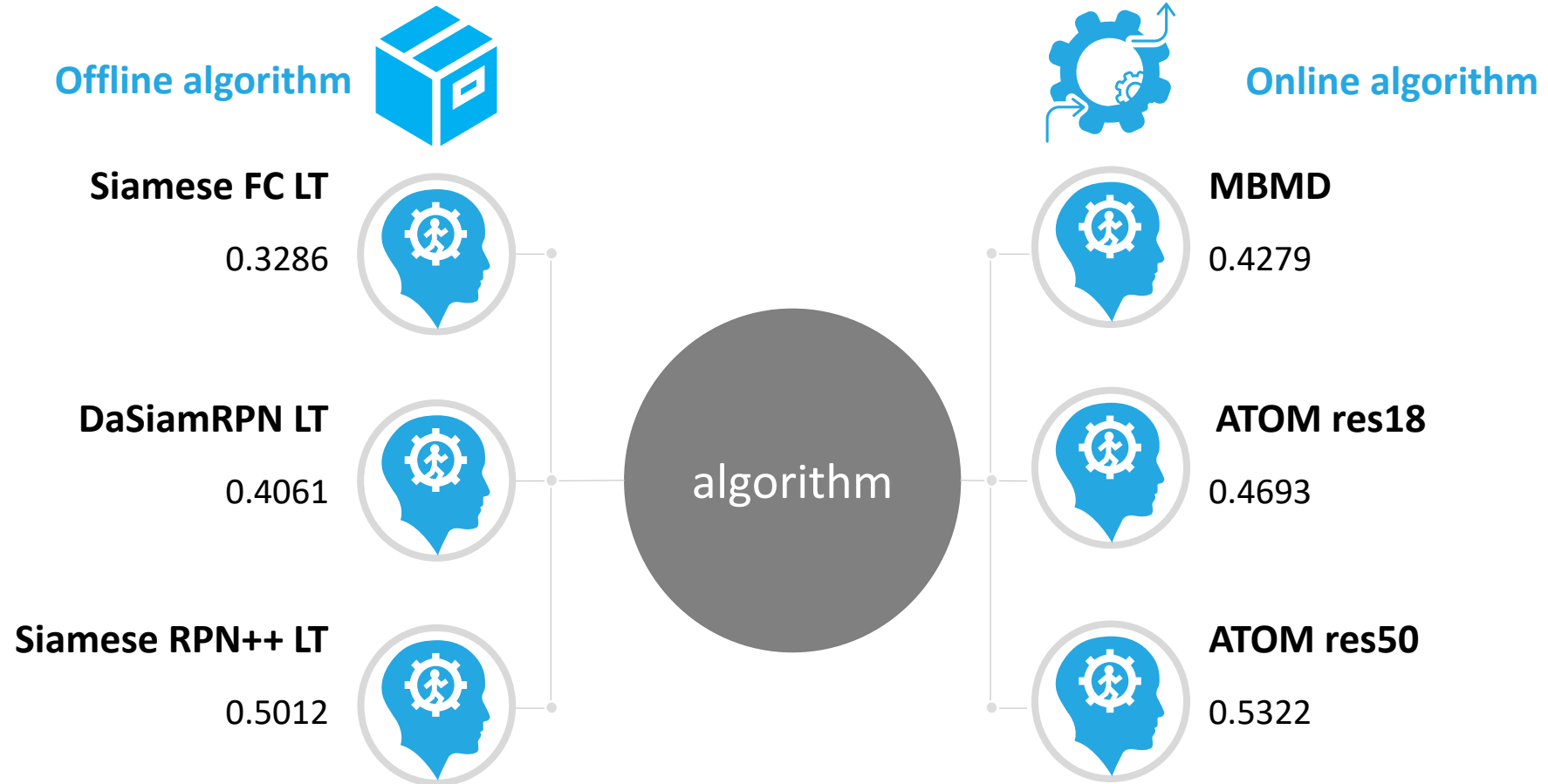
Challenges



Challenges



The performance of recent SOTA algorithms



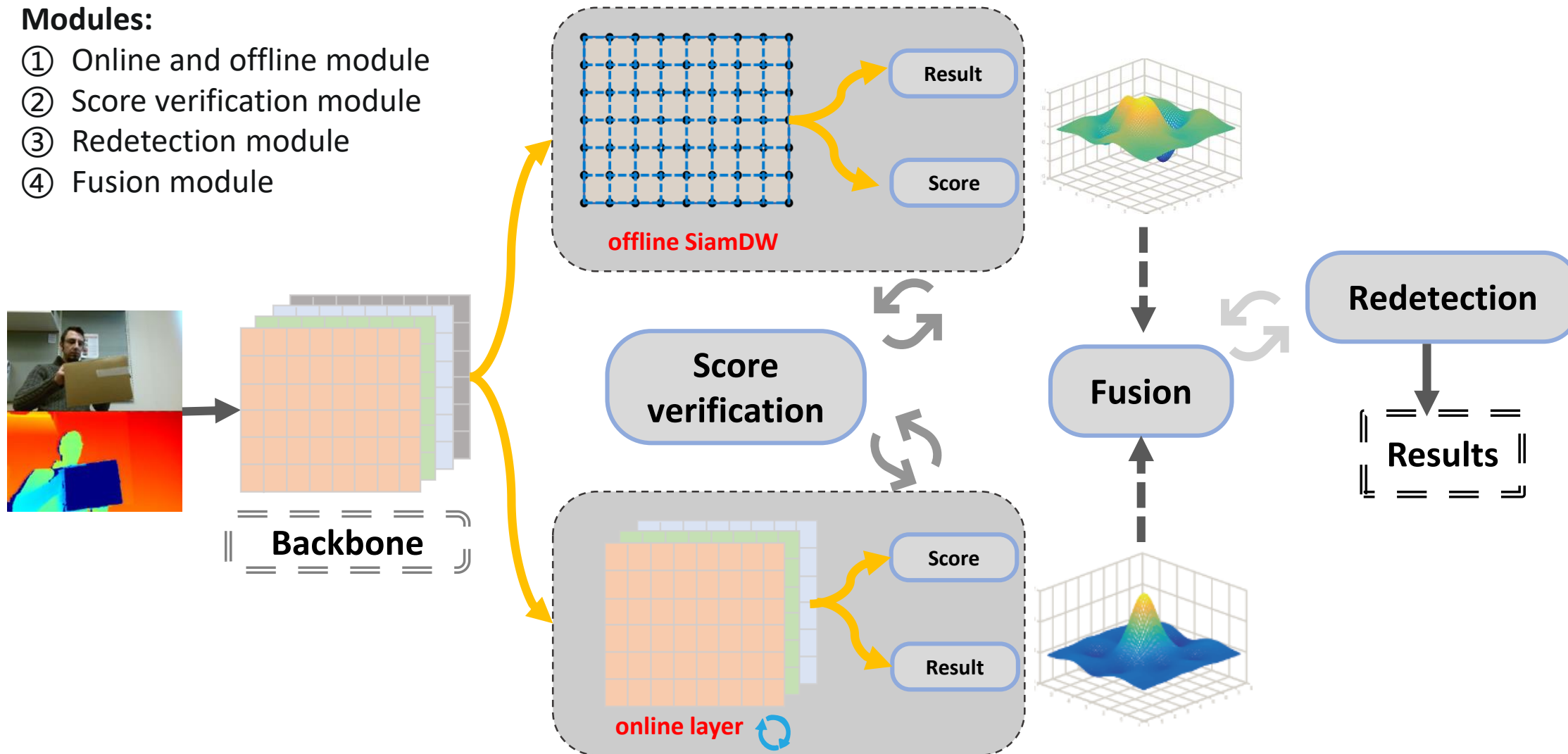
The
performance
of recent
SOTA
algorithm

Model	RGB	Depth
SiamFC [Luca et al.]	0.3286	--
SiamRPN LT [Zhu et al.]	0.4061	0.1493
SiamRPN++ LT [Li et al.]	0.5012	--
SiamRPN++ OTB [Li et al.]	0.5396	0.2957
SiamRPN++ mobilenet [Li et al.]	0.4758	0.2005
SiamMask [Wang et al.]	0.5088	0.2271
MBMD [Wang et al.]	0.4279	0.2311
ATOM res18 [Martin et al.]	0.4693	0.2720
ATOM res50 [Martin et al.]	0.5322	0.2700

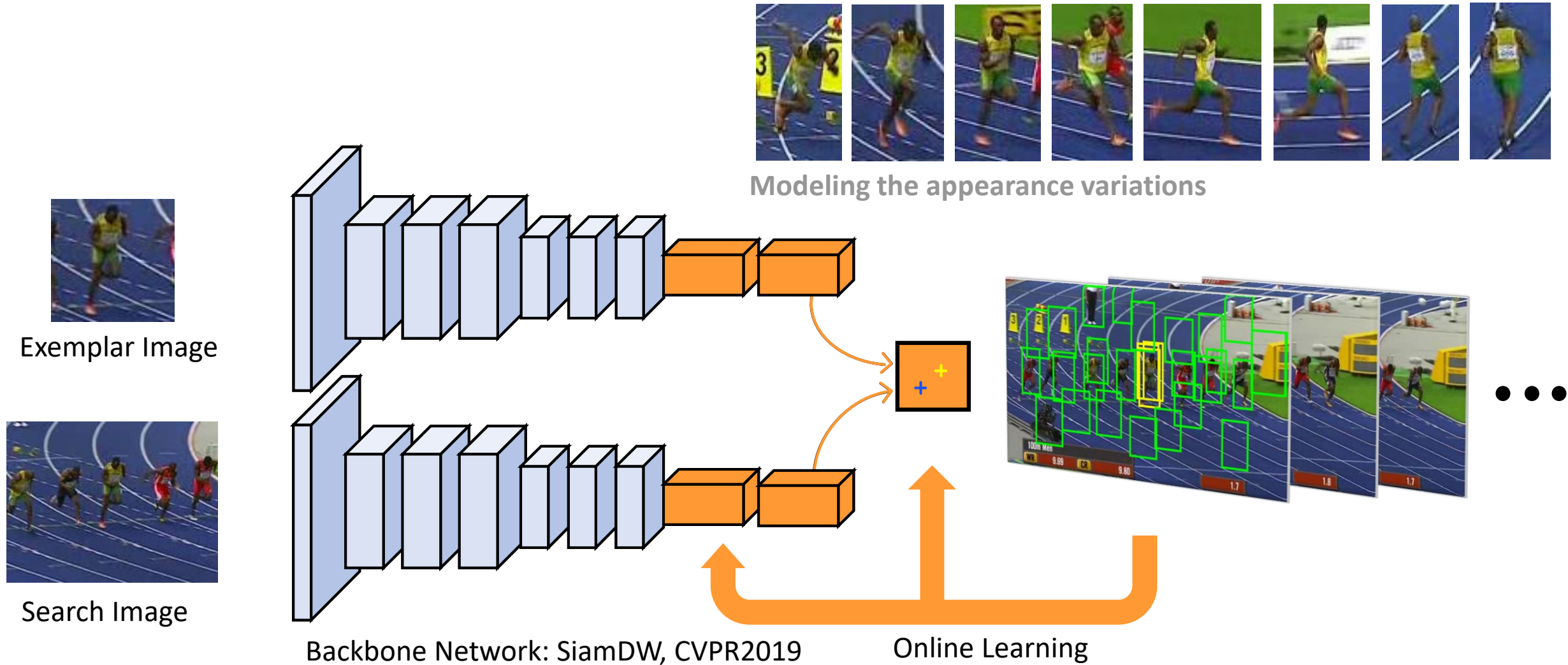
Our model

Modules:

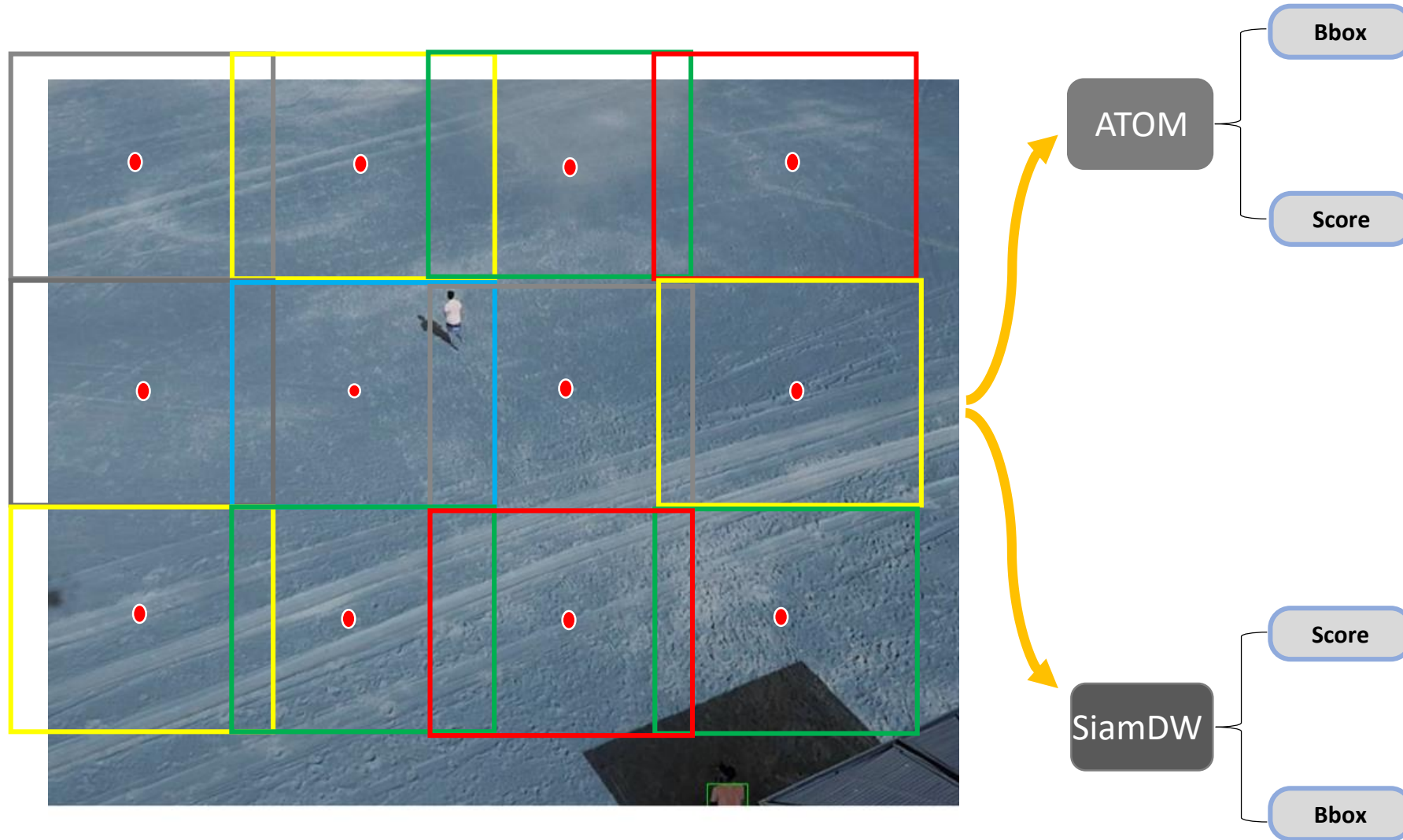
- ① Online and offline module
- ② Score verification module
- ③ Redetection module
- ④ Fusion module



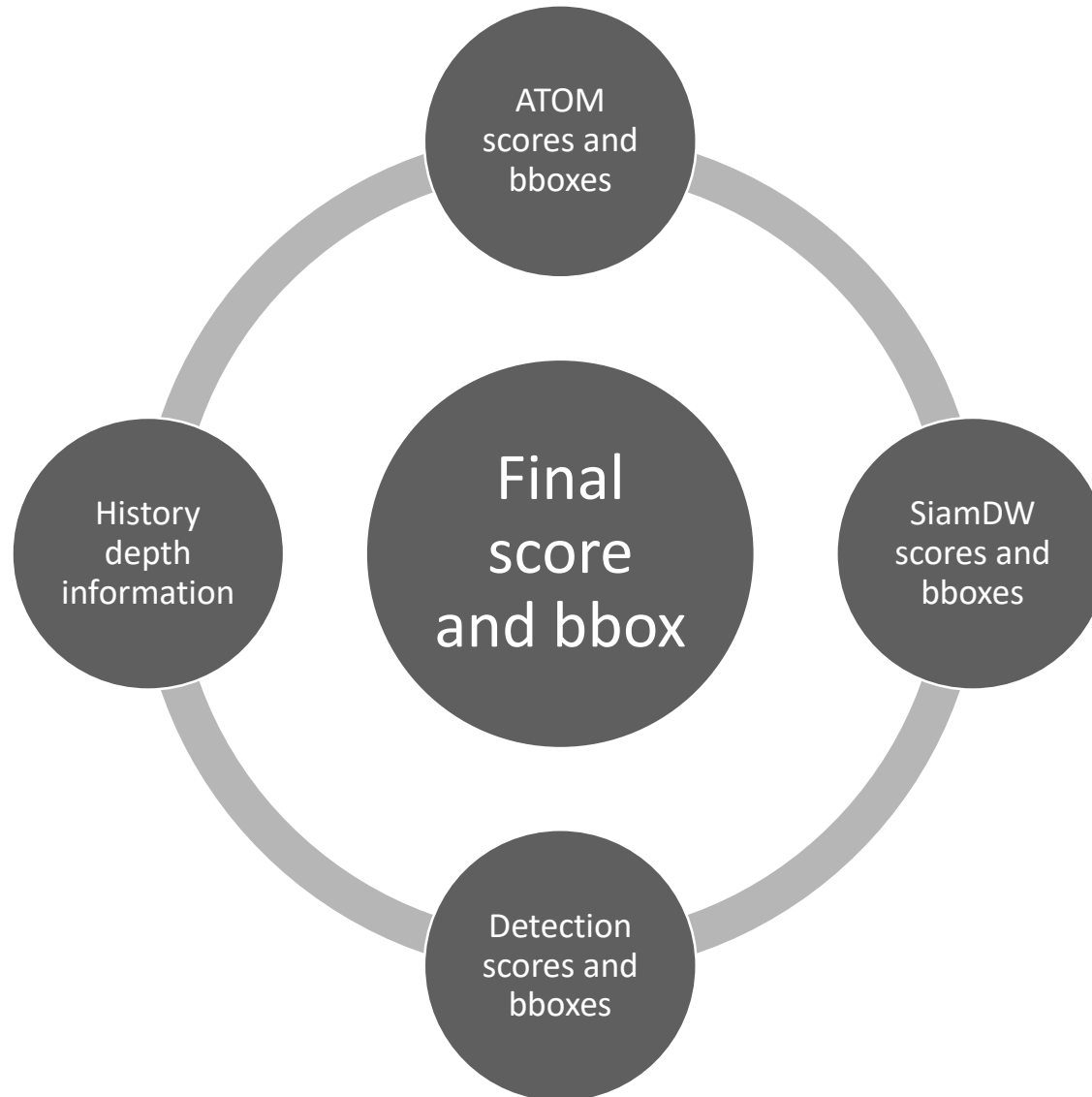
Online Siamese Framework

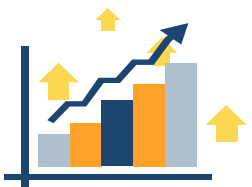


Redetection module

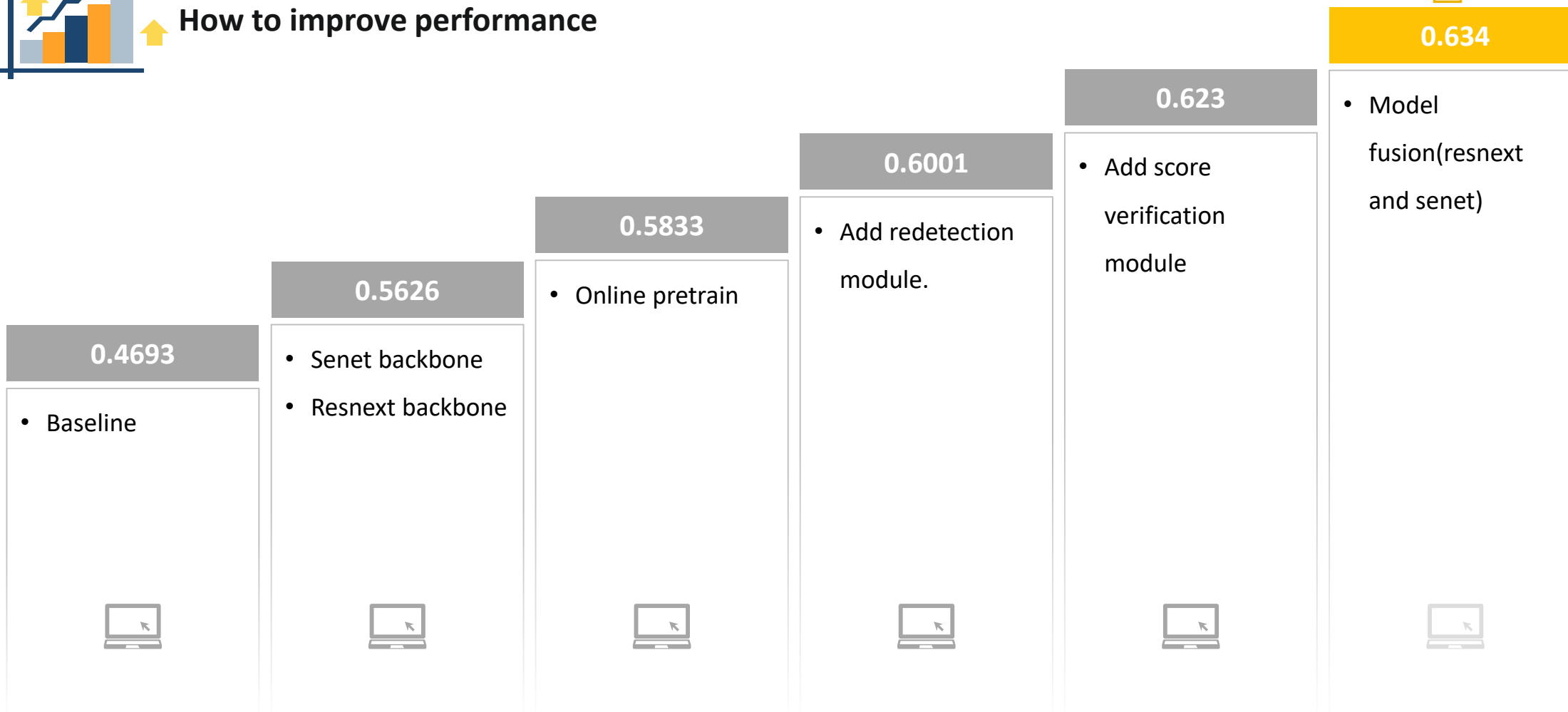


Score verification

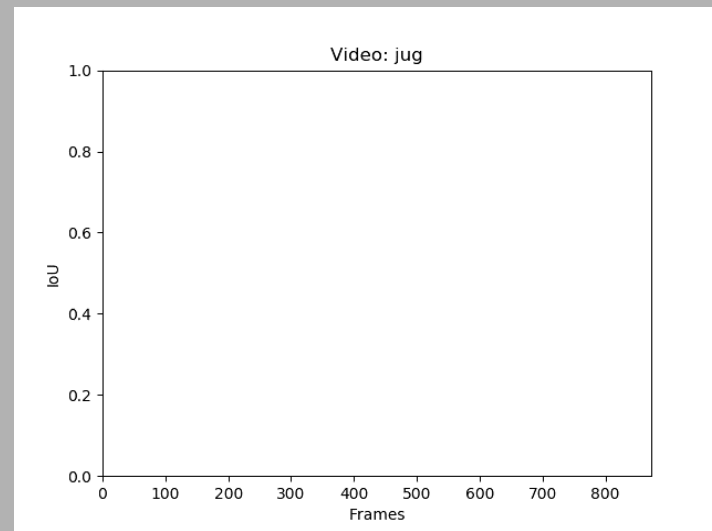
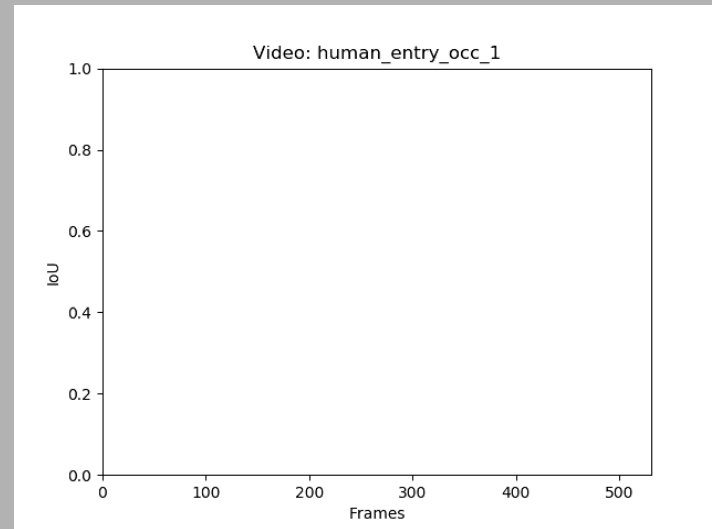




How to improve performance



Visualization results

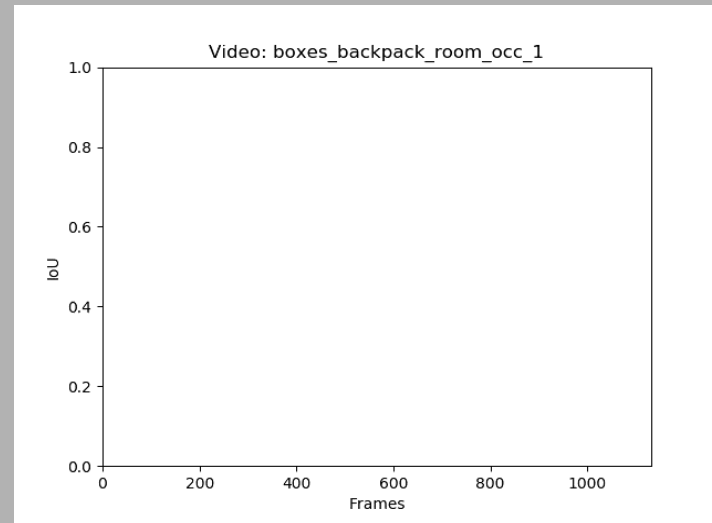
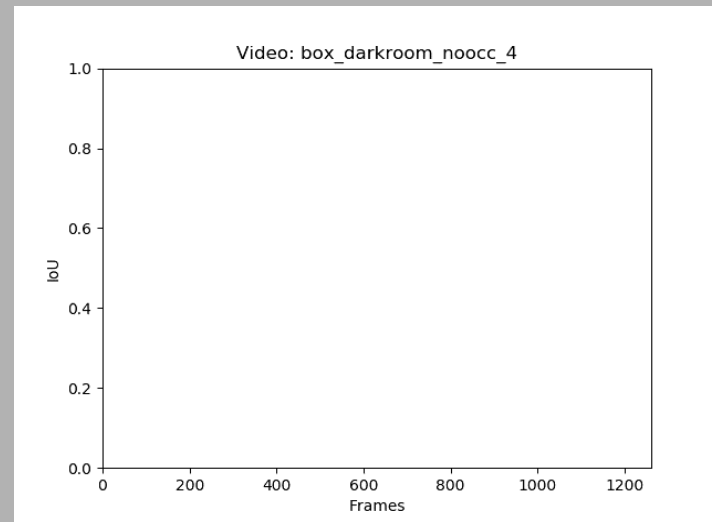


Ours ———

DaSiam_LT ———

MBMD ———

Visualization results



Ours ———

DaSiam_LT ———

MBMD ———

Deeper and Wider Siamese Networks Family

CVPR2019 ORAL

Winner of VOT2019 RGBD tracking (SiamDW-D)

Runner-up of VOT2019 LT tracking (SiamDW-LT)

Runner-up of VOT2019 RGBT tracking(SiamDW-T)



Code & Models



SiamDW
(CVPR2019)



VOT2019

SiamDW-LT
SiamDW-RGBD
SiamDW-RGBT

Reference

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