

CHASE: Robust Visual Tracking via Cell-Level Differentiable Neural Architecture Search (Supplement)

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To complement the main paper, first, the qualitative comparison of the proposed CHASE tracker with state-of-the-art methods is provided by an attached video file; Second, additional attribute-based comparisons omitted from the main paper due to the space limitation are presented in this supplementary material. The proposed CHASE tracker is compared with state-of-the-art visual trackers on the large-scale generic tracking dataset, LaSOT [9] (Fig. 1), and the well-known UAV-123 dataset [9] (Fig. 2), an aerial tracking benchmark. These trackers include ROAM++ [10], SiamAttn [10], Ocean-online [13], SiamCAR [9], SiamBAN [9], PrDiMP-50 [9], ATOM [9], DaSiamRPN [14], DiMP-50 [9], SiamRPN++ [8], SiamDW [12], and ECO [9]. The attribute-based evaluations comprise tracking scenarios with different characteristics, namely *illumination variation* (IV), *partial occlusion* (POC), *deformation* (DEF), *motion blur* (MB), *camera motion* (CM), *rotation* (ROT), *background clutter* (BC), *viewpoint change* (VC), *scale variation* (SV), *full occlusion* (FOC), *fast motion* (FM), *out-of-view* (OV), *low resolution* (LR), *aspect ratio change* (ARC), and *similar object* (SO). Figures 1 & 2 compare state-of-the-art visual trackers in terms of the *area under curve* (AUC) metric, representing the overall performance based on the average overlap scores of estimated bounding boxes with the ground-truths. According to Fig. 1 and Fig. 2, the proposed CHASE tracker outperforms all the recent trackers based on the AUC metric on both the generic long-term dataset of LaSOT [9] and the aerial tracking dataset of UAV-123 [9].

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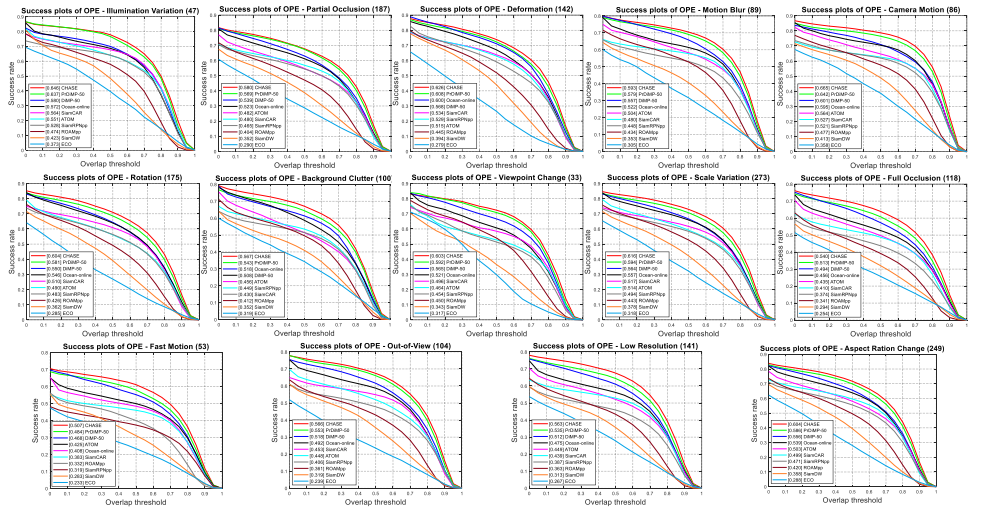


Figure 1: Attribute-based comparisons on LaSOT (test set) dataset [5] in terms of AUC metric.

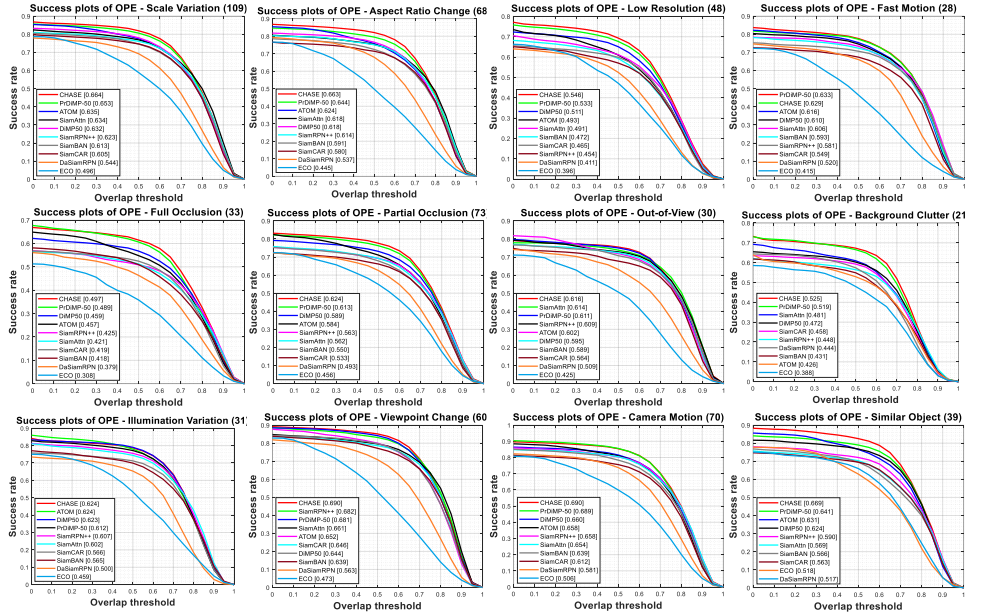


Figure 2: Attribute-based comparisons on UAV-123 dataset [5] in terms of AUC metric.

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