AutoTrack: Towards High-Performance Visual Tracking for UAV with Automatic Spatio-Temporal Regularization

Supplementary Material

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1. Sensitivity analysis of hyper parameters

Four hyper parameters in equation 3 and 4 are introduced to enable automatic regularization. The sensitivity analysis, i.e., how the different values for the hyper parameters affect the tracking performance, can be seen in Fig. 1. Noted that we fix the other three hyper parameters and change the value of the analyzed one.

2. Attribute-based evaluation

Full attribute-based evaluations on DTB70 [1], UAVDT [2], UAV123@10fps [3] and VisDrone2018-test-dev [4] are displayed from Fig. 2 to Fig. 9, proving competent performance of AutoTrack in various challenging scenarios.

References


Figure 1. Sensitivity analysis of four hyper parameters (δ, ν, ζ and φ) on DTB70 [1]. The variations of δ, ν and φ have a relatively small impact on tracking performance (the precision and AUC are mostly within the range of 0.68 to 0.72 and 0.465 to 0.48, respectively), while the change of φ has a relatively larger influence.
Figure 2. Precision plots of eleven attributes from DTB70 [1].
Figure 3. Success plots of eleven attributes from DTB70 [1].
Figure 4. Precision plots of nine attributes from UAVDT [2].
Figure 5. Success plots of nine attributes from UAVDT [2].
Figure 6. Precision plots of twelve attributes from UAV123@10fps [3].
Figure 7. Success plots of twelve attributes from UAV123@10fps [3].
Figure 8. Precision plots of nine attributes from VisDrone2018-test-dev [4].
Figure 9. Success plots of nine attributes from VisDrone2018-test-dev [4].