

Supplementary Material

UTB180: A High-quality Benchmark for Underwater Tracking

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1 Performance Evaluation of SOTA Trackers

– **Protocol I:** Performance evaluation of 15 SOTA pre-trained trackers (Fig. 1-2).

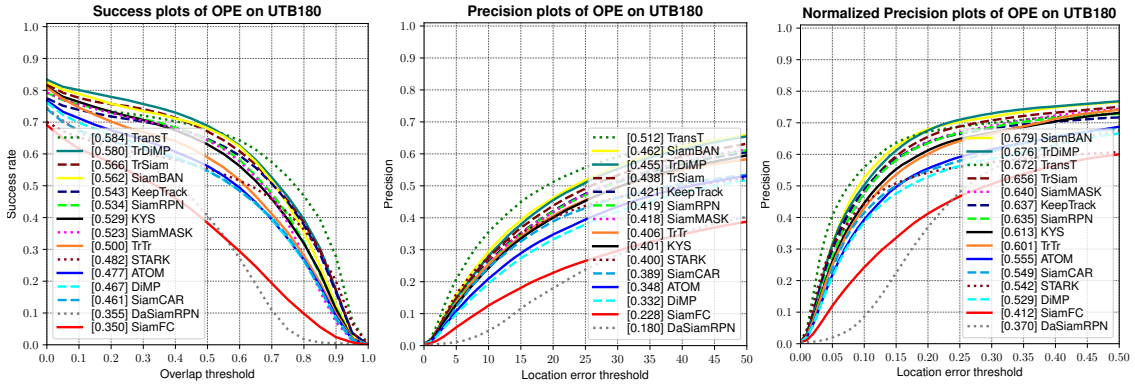


Fig. 1: Results of the pre-trained trackers on our proposed UTB180 dataset. From left to right, success, precision, and normalized precision plots are shown.

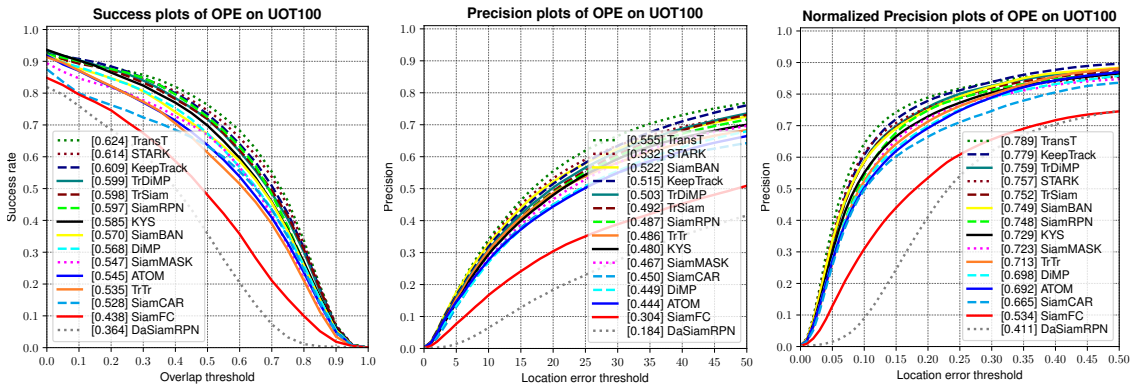


Fig. 2: Results of the pre-trained trackers on UOT100 dataset. From left to right, success, precision, and normalized precision plots are shown.

- **Protocol II:** Performance evaluation of representative SOTA trackers fine-tuned on our UTB180 dataset (Fig. 3).

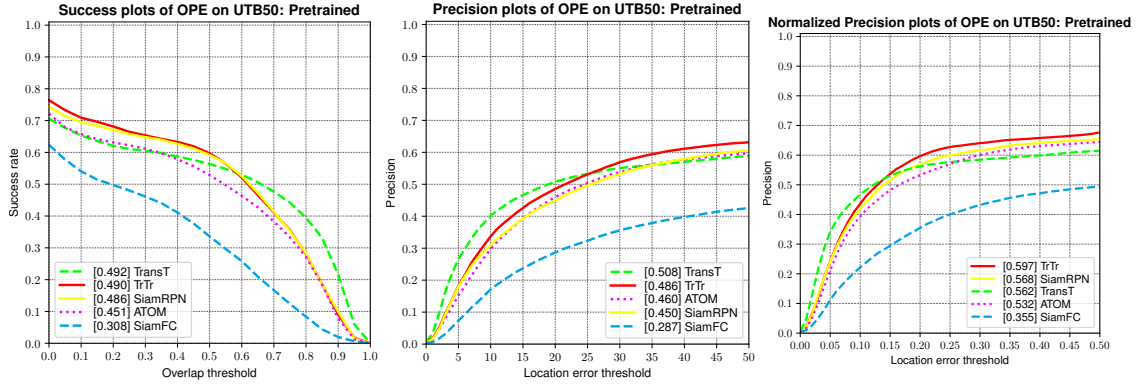


Fig. 3: Results of the pre-trained trackers using testing split of our proposed UTB180 dataset. From left to right, success, precision, and normalized precision plots are shown.

- **Protocol II: Fine-tuned trackers results** (Fig. 4).

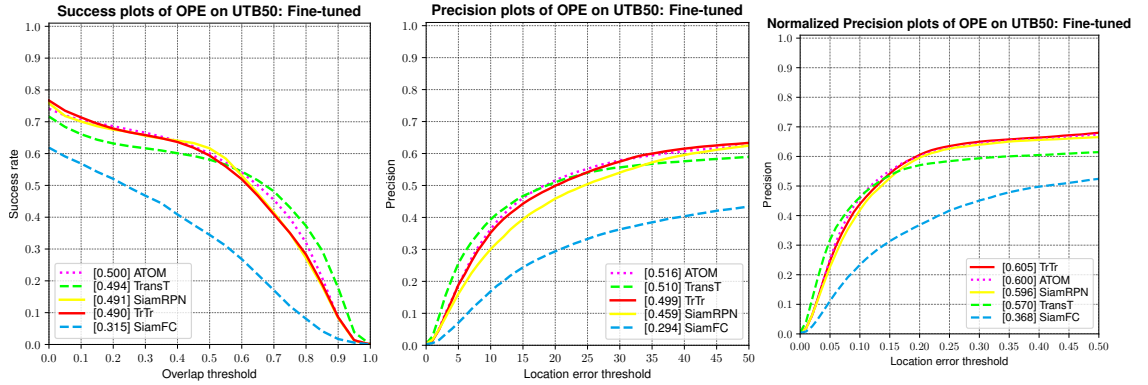


Fig. 4: Results of the fine-tuned trackers using our proposed UTB180 dataset. From left to right, success, precision, and normalized precision plots are shown.

2 Attribute-wise performance comparison of SOTA trackers

Here, we provide attribute-wise performance evaluations for all 15 pre-trained trackers on UTB180 dataset.

1. Unclear Water (UW) (Fig. 5).
2. Target Scale Variation (SV) (Fig. 6).
3. Out-of-View (OV) (Fig. 7)
4. Partial Occlusion (PO). (Fig. 8).
5. Full Occlusion (FO) (Fig. 9)
6. Deformation (DF) (Fig. 10)
7. Low Resolution (LR) (Fig. 11).

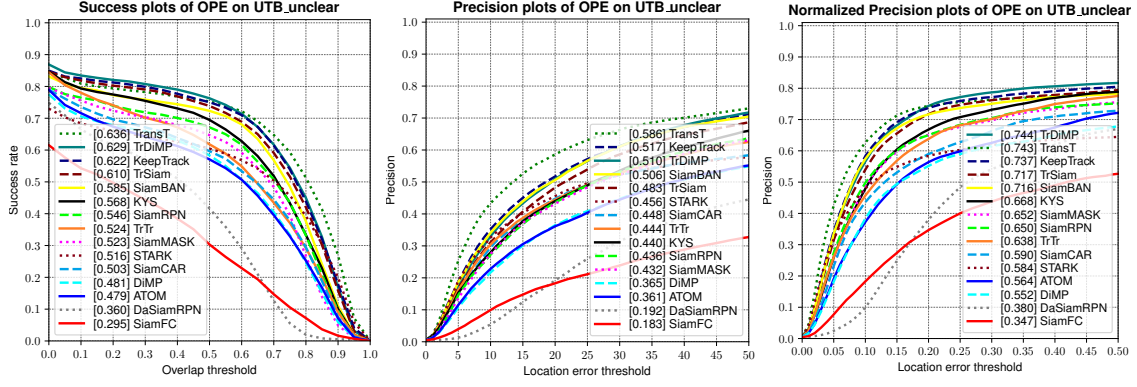


Fig. 5: Unclear Water (UW) tracking attribute. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

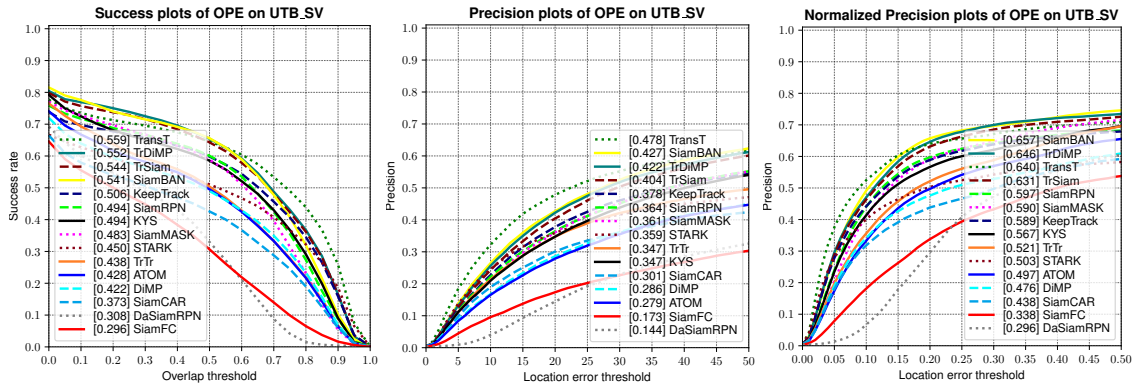


Fig. 6: Target Scale Variation (SV) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

8. **Fast Motion (FM)** (Fig. 12)
9. **Motion Blur (MB)** (Fig. 13)
10. **Similar Objects (SO)** (Fig. 14).

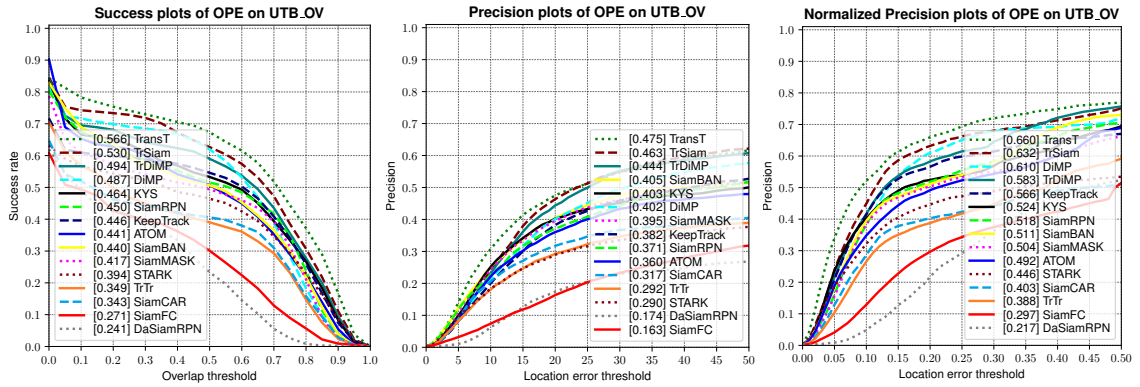


Fig. 7: Target Out-of-View (OV) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

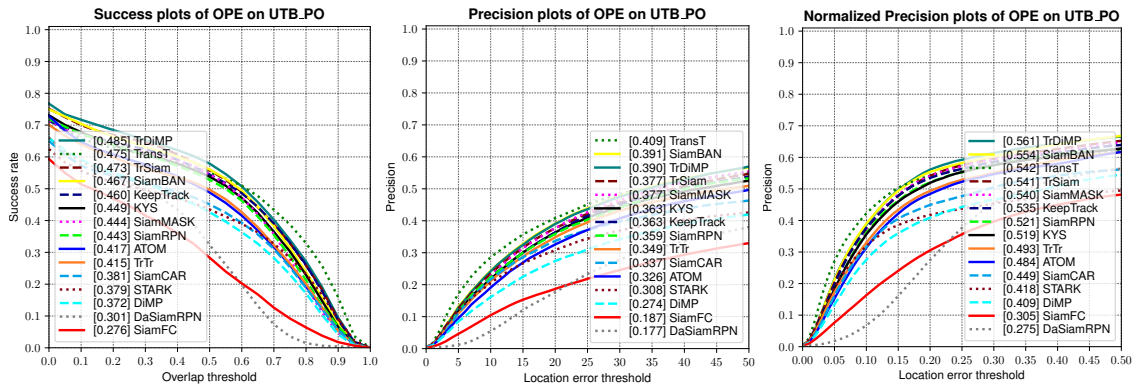


Fig. 8: Target Partial Occlusion (PO) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

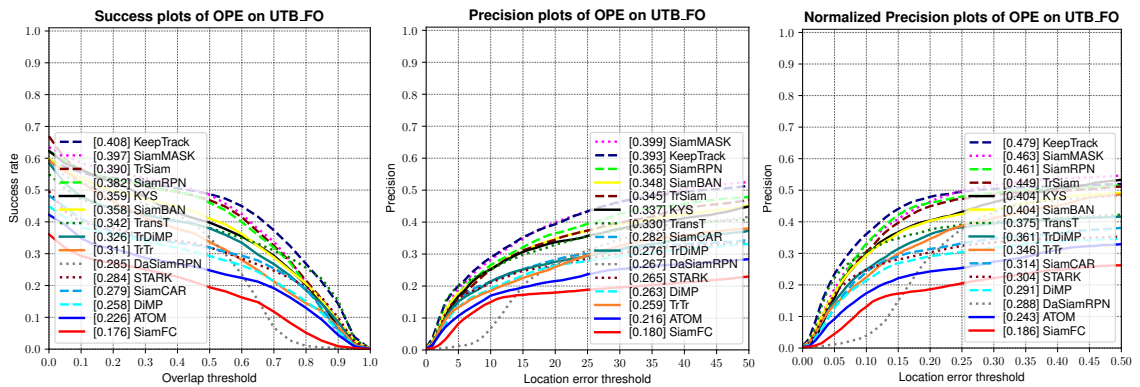


Fig. 9: Target Full Occlusion (FO) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

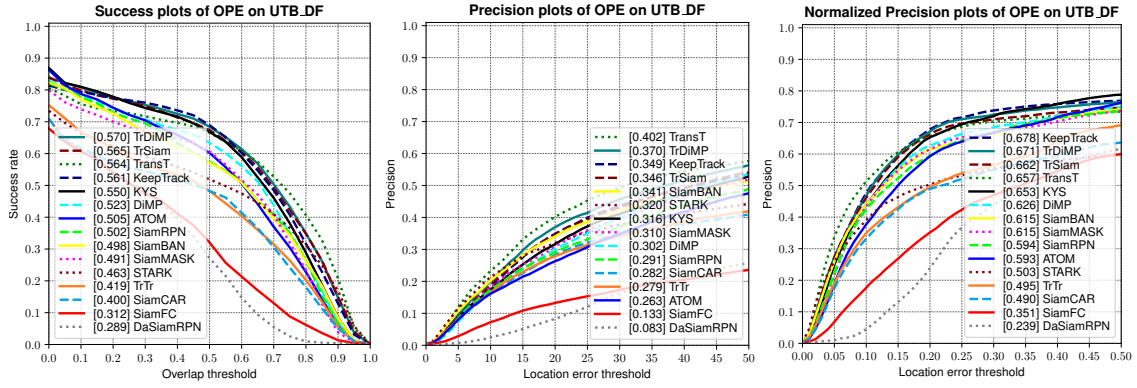


Fig. 10: Target Deformation (DF) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

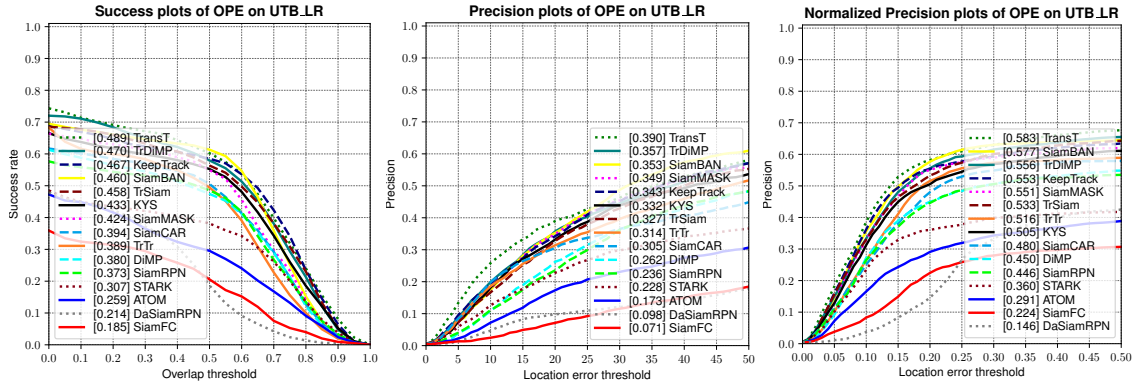


Fig. 11: Target Low Resolution (LR) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

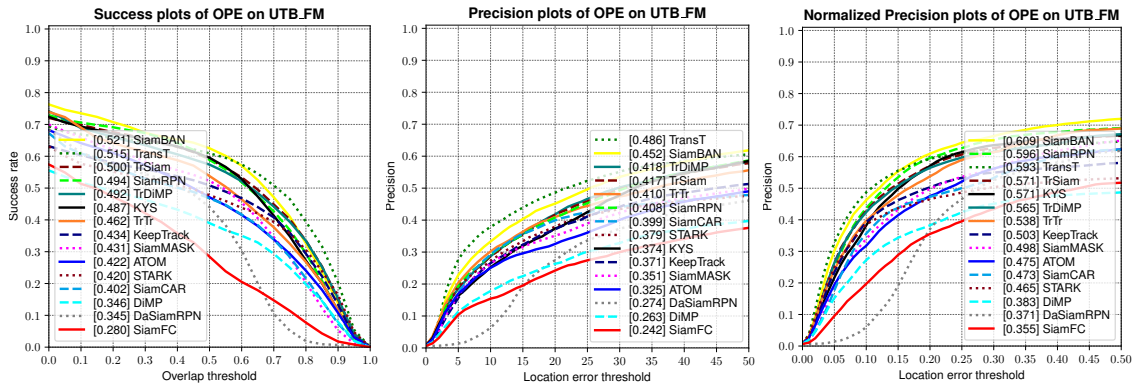


Fig. 12: Target Fast Motion (FM) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown.

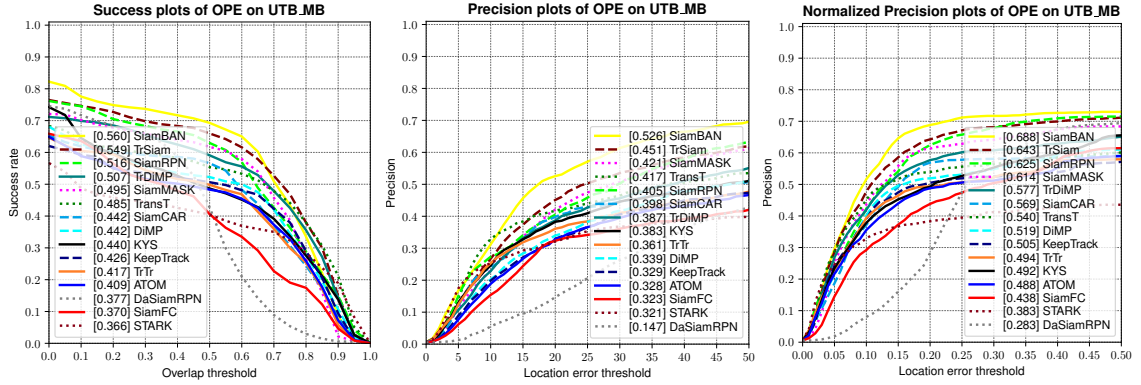


Fig. 13: Target Motion Blur (MB) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown

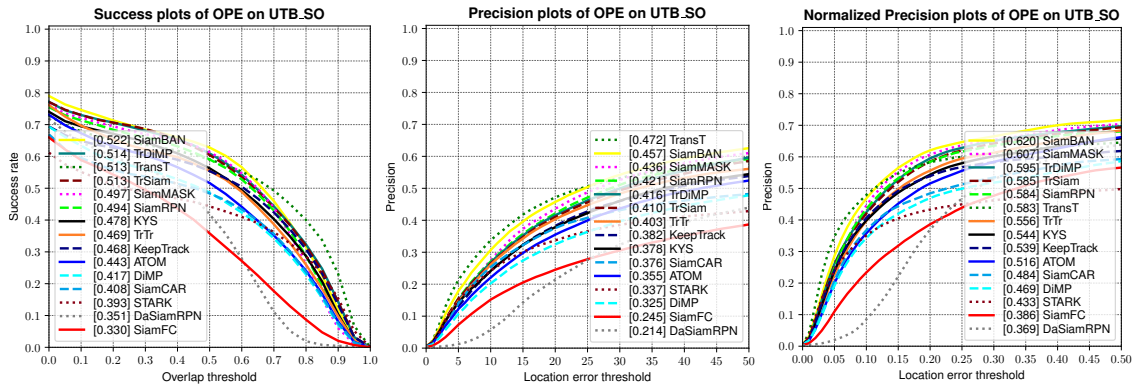


Fig. 14: Target Similar Objects (SO) challenge. Results of the pre-trained trackers on our proposed dataset. From left to right, success, precision, and normalized precision plots are shown