

Supplementary Material of Group Sampling for Scale Invariant Face Detection

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1. More Comparison Results

Results on WIDER FACE test set. We show the comparison results on the WIDER FACE [2] test set in Figure 1. We can see that our approach achieves state-of-the-art performance on hard subset.

Results on AFW. The comparison results on Annotated Faces in the Wild (AFW) [3] in terms of Precision-Recall curve are shown in Figure 2a. This dataset consists of 205 images with 473 annotated faces. As we can see, our approach achieves comparable performance with other methods.

Results on PASCAL Faces. We also replot the results of our approach on the PASCAL Faces [1], which contains 851 images with 1,335 labeled faces. The comparison is illustrated in Figure 2b, showing that our approach achieves state-of-the-art performance.

2. Qualitative Results

Figure 3 illustrates some the detection results of our approach on several example images which are mainly from WIDER FACE test set, showing the robustness of our model.

References

- [1] J. Yan, X. Zhang, Z. Lei, and S. Z. Li. Face detection by structural models. *Image and Vision Computing*, 32(10):790–799, 2014. 1
- [2] S. Yang, P. Luo, C.-C. Loy, and X. Tang. Wider face: A face detection benchmark. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition*, pages 5525–5533, 2016. 1
- [3] X. Zhu and D. Ramanan. Face detection, pose estimation, and landmark localization in the wild. In *Computer Vision and Pattern Recognition (CVPR), 2012 IEEE Conference on*, pages 2879–2886. IEEE, 2012. 1

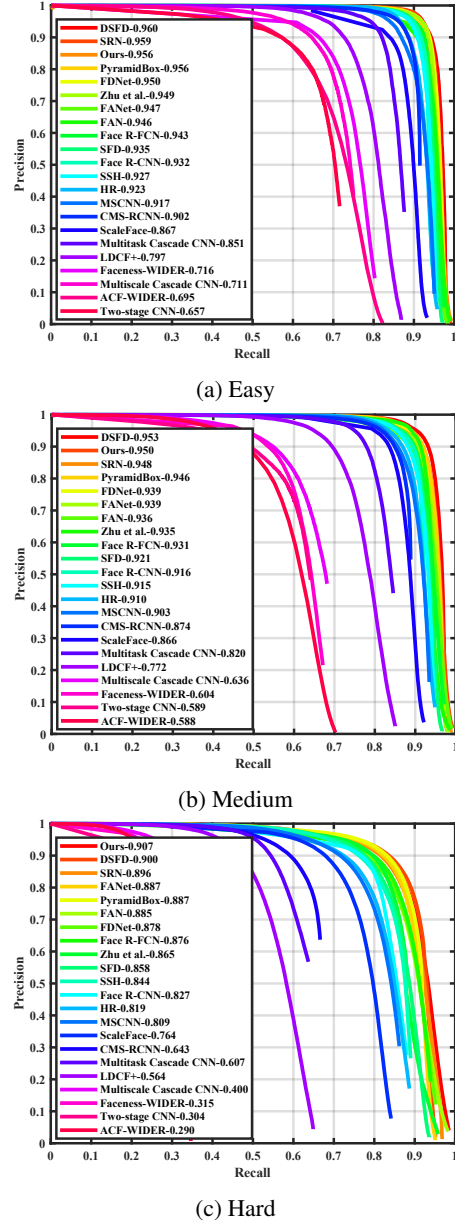
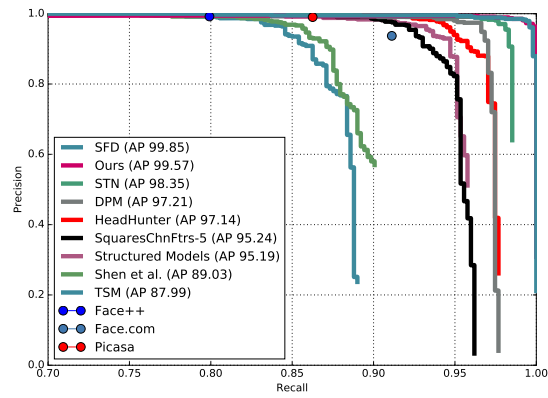
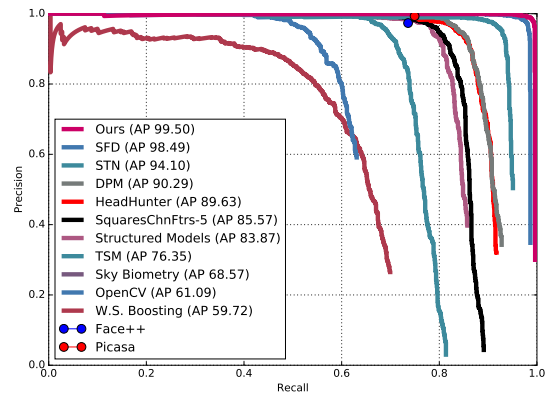


Figure 1: Performance comparison with other methods in terms of precision-recall curves on WIDER FACE test set.

*Work done during the internship at Microsoft Research Asia.



(a) AFW



(b) PASCAL

Figure 2: Performance comparison on (a) AFW and (b) PASCAL Faces.

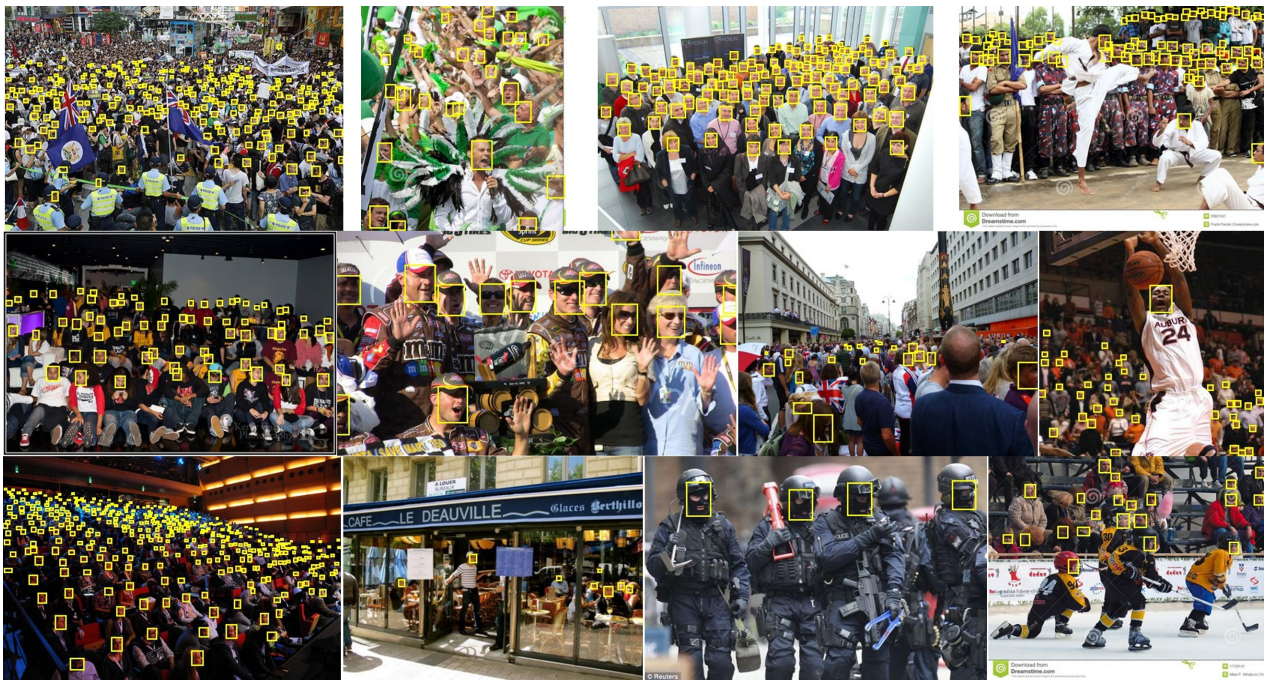


Figure 3: Illustration of the detection results of our approach for faces with a high degree of variability in scale, pose, and occlusion.