Domain Generalized RPPG Network: Disentangled Feature Learning with Domain Permutation and Domain Augmentation (Supplementary Material)

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1   Network Architecture

Figures 1, 2, 3, 4, and 5 show the network architectures of the global feature encoder F, the extractor S, the decoder D, the rPPG estimator E, and the classifier C in DG-rPPGNet.

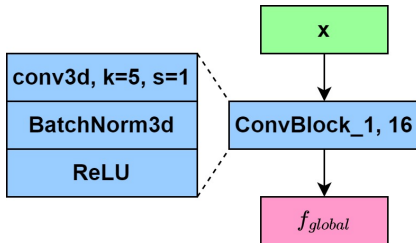In Fig. 1, the global feature encoder F is a shallow module with only one convolutional layer.

Fig. 1: The architecture of the global feature encoder F.

In Fig. 2, the rPPG extractor S_{rPPG}, the ID extractor S_{id}, and the domain extractor S_{domain} have the same architecture but different weights. Therefore, the output $f_{extract}$ here corresponds to f_{rPPG}, f_{id}, and f_{domain} in S_{rPPG}, S_{id}, and S_{domain}, respectively.

In Fig. 3, the decoder D has two outputs (1) the reconstructed global feature f'_{global}; and (2) the reconstructed video x'.

Fig. 4 is the architecture of the proposed rPPG estimator E. E_{rPPG}^{global} and E_{rPPG}^{disent} have same architecture but different weights. Here, we include the self-attention mechanism [1] after each ST-Module to guide our rPPG estimator to focus on skin regions instead of the background.
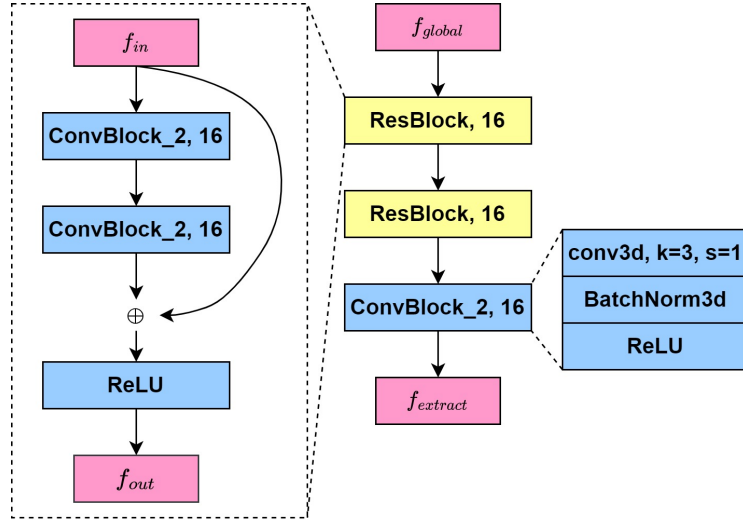
Fig. 2: The architecture of the extractor S. $\oplus$ indicates the element-wise addition.
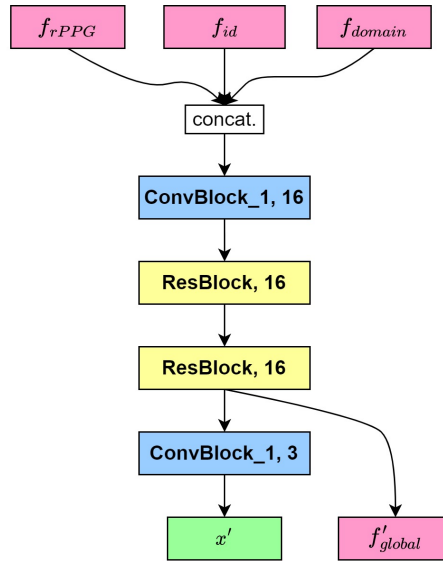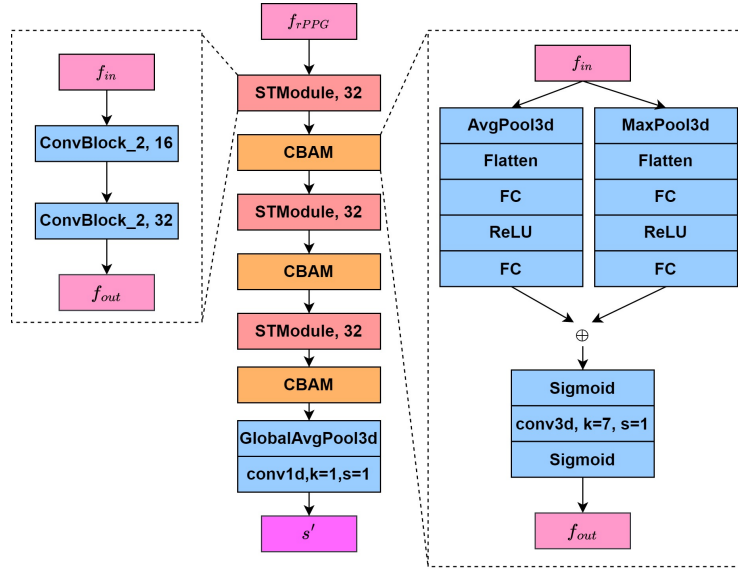

Fig. 3: The architecture of the decoder D.

Fig. 4: The architecture of the rPPG estimator E.

Fig. 5 is the architecture of the proposed classifier C. C_{id} and C_{domain} have the same architecture but different weights. Therefore, the output y' here corresponds to y'^{id} and y'^{domain} in C_{id} and C_{domain}, respectively.
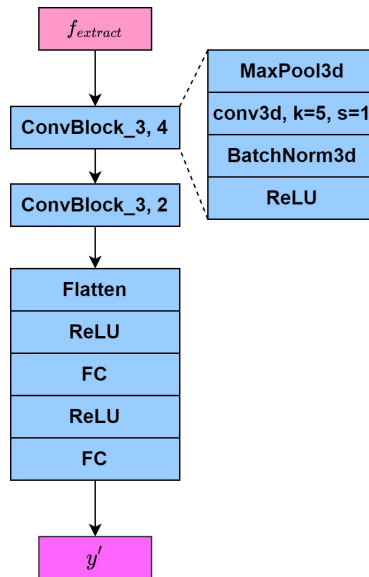
Fig. 5: The architecture of the classifier C.

References

1. Woo, S., Park, J., Lee, J.Y., Kweon, I.S.: Cbam: Convolutional block attention module. In: Proceedings of the European conference on computer vision (ECCV). (2018) 3–19