Supplementary Materials: Dual-Criterion Quality Loss for Blind Image Quality Assessment

Anonymous Authors

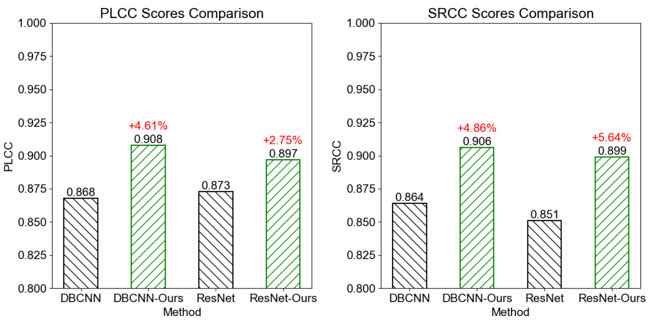

Figure 1: Comparison of the performance of DBCNN and ResNet-50 on the KONIQ-10k dataset with DCQ and original MSE loss.

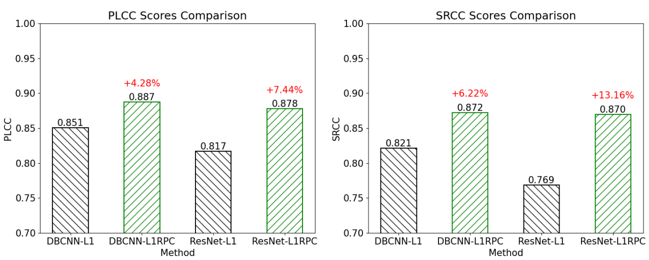

Figure 2: Performance comparison of DBCNN and ResNet-50 on the TID2013 dataset using original L1 loss and L1 loss combined with Perceptual Constancy Constraint (RPC).

1 MORE EXPERIMENTS

1.1 More Results on KONIQ

We provide a comparative bar chart illustrating the accuracy of DBCNN and ResNet-50 on the KONIQ-10k dataset using DCQ Loss and the original MSE. KONIQ-10k is a widely-used large-scale image quality assessment dataset, comprising 10,073 high-quality rated images. As shown in Fig.1, both DBCNN and ResNet-50 demonstrate significant improvements in PLCC and SRCC accuracy when employing DCQ Loss as the loss function, compared to the original MSE.

1.2 With L1 loss

Additionally, some Image Quality Assessment (IQA) models employ L1 loss as the loss function. To verify that the proposed perceptual constancy constraint is not limited to MSE loss, we conducted experiments on the TID2013 dataset using DBCNN and ResNet-50 as backbone networks. The models were trained using both L1 loss alone and L1 loss combined with the perceptual constancy constraint. The experimental results, as illustrated in the Fig.2, demonstrate that the perceptual constancy constraint also achieves significant gains when used with networks trained on L1 loss. This confirms the effectiveness and universality of the proposed perceptual constancy constraint.