

Supplementary Materials: Neural Biplane Representation for BTF Rendering and Acquisition

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To efficiently utilize BTF data in rendering, we present a novel BTF representation model that compresses each BTF into two feature planes by a shared universal MLP decoder. Our model achieves faster compression and evaluation by considering both the angular and spatial domains as feature spaces, and also enables a light-weight BTF acquisition approach. In this supplementary material, we discuss the trade-off between storage cost and the accuracy of our representation.

We carefully balance the model’s accuracy and complexity. In Figure 1, we show the relationship between the validation error and two significant hyperparameters: the number of biplane channels and MLP layers. Generally, more channels or MLP layers can increase the model accuracy, while introducing more storage requirement and computational cost. Finally, we decide to set both parameters to six, as a trade-off between the quality and storage overhead.

1 SIZE/ACCURACY TRADE-OFF

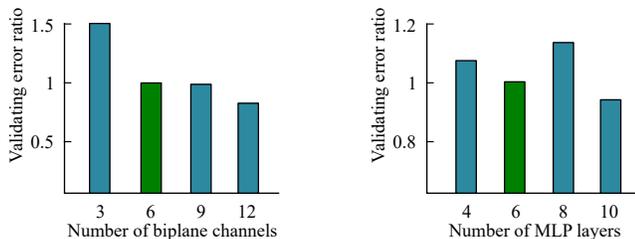


Figure 1: The ablation studies on two main parameters of our model. We show the ratio of validation error between a given model and our default model with respect to: (i) the number of biplane channels (set to 6 by default), and (ii) the number of layers in the MLP (set to 6 by default).

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