

residual for a certain block or a certain image, using unique IDs for both, for example a block identifier and/or an image identifier or a frame number. Fig. 4 illustrates this.

- b) The transmitter performs the overfitting of the decoder, and sends to the receiver the decoder's weight residual, i.e., the difference between the weights of the decoder before and after the overfitting. The additional signaling associated with this option may include informing the receiver that the transmitted data is weights' residual and each single weight residual value may be associated to an identifier of the weight to be applied to. In order to reduce the amount of signaling, one may send the weight residual for all weights, where the order of the weights residuals implicitly identify what weights they need to be applied to, and where many weights residuals may be zero. Other suitable ways of associating the weights residuals to the correct weights may be used.

The transmitter may choose to consider both of the above two options initially. Then, it may compute the bitrate increase separately for each option and select the option with minimal bitrate increase. However, in some cases the bitrate increase for allowing the receiver to run an overfitted decoder for the current block may not be worth the reconstruction quality increase. Thus, since subsequent nearby blocks are likely to benefit also by the decoder overfitted to the current block (due to spatial correlation/redundancy in images), the transmitter may take into account the reconstruction quality (e.g., PSNR) increase for the current block and for the subsequent N blocks. If the quality increase for those blocks is worth bitrate increase, then the transmitter may send the additional data (either the block residual or the weights residual) to the receiver.

Also, the transmitter may take into account the baseline and other decoders previously overfitted and which are already available at receiver's side. If the baseline decoder performs well enough (especially compared to the bitrate increase for using an overfitted decoder), the transmitter may not send any additional data. If one of the previously overfitted decoders which are available at receiver's side performs well enough, the transmitter will signal to the receiver to use that overfitted decoder (e.g., by using a unique decoder's ID).

Also, in this embodiment, it is possible that the overfitting starts from the baseline, from the neural networks overfitted on previous blocks, or from neural networks