

SOFT-INPUT SOURCE DECODING FOR ROBUST TRANSMISSION OF COMPRESSED IMAGES USING TWO-DIMENSIONAL OPTIMAL ESTIMATION

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ABSTRACT

In this paper we address the transmission of compressed images over highly corrupted AWGN-channels using an optimal estimation approach at the decoder. In contrast to other methods we only use a negligible amount of explicit redundancy based on channel codes. Mainly, the implicit residual source redundancy inherent in the quantized subband images and the bit-reliability information at the channel output are utilized for error protection. As a novelty we extend the optimal estimation technique from the one- to the two-dimensional case, where both horizontal and vertical correlations are exploited in the subband images. Based on this approach the performances for several estimation methods are compared, where also approaches for approximating the source correlations at the decoder are discussed.