ITERATIVE SOURCE-CHANNEL DECODING FOR ROBUST IMAGE TRANSMISSION

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ABSTRACT

In this paper we discuss the application of a joint source-channel decoding approach to image transmission over wireless channels. In addition to channel codes, also the implicit residual redundancy after source encoding in both horizontal and vertical direction is utilized for error protection. At the decoder we use an iterative ("turbo") source-channel decoder which can be obtained in the same manner as for serially concatenated channel codes. As a new result we show that this iterative decoding scheme in combination with a novel simplified joint source and channel coding rate allocation at the encoder can be successfully employed for protecting the image data, especially when the channel is highly corrupted. Furthermore, when the source correlations are approximated with a large training set at the decoder, only a small loss in performance is observed.