MULTI−CHANNEL ADAPTIVE BIT ALLOCATION AND ERROR CONTROL FOR VIDEO TRANSMISSION OVER WIRELESS NETWORKS (WedPmPO1)

Author(s) :

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Abstract :

Multiple Description Coding (MDC) has proven to be a powerful tool for joint source/channel coding applications. Indeed, MDC offers the possibility of controlling easily the amount of redundancy introduced in the transmitted signal while maintaining good quality decoding even when the channel is noiseless. However, to our knowledge, few work have been dedicated to the tuning of the redundancy parameter according to the channel noise level. Moreover, in case of non stationary channel a solution must be found to adapt automatically the amount of redundancy in order to maintain transmission quality. In this paper, we propose a MDC method that estimates the amount of source redundancy that must be dispatched between the different descriptors according to the channel state. This method includes a wavelet transform and an optimal bit allocation process of the binary ressources across the different descriptors and the different wavelet subbands. It takes into account the knowledge of the channel impulse response which is time variable and reflects accurately the propagation conditions encountered in a real environment. We focus on radio frequency wireless transmission.
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Abstract : (cont.)

The proposed method is well suited for wideband mobile communications where the channel can be modeled as a superposition of a discrete number of paths. Simulations of the proposed MDC for different number of descriptions
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Abstract : (cont.) and redundancies are performed giving very encouraging results compared with other state−of−the−art MDC.